सत्यमेव जयते

INDIAN AGRICULTURAL
RESEARCH INSTITUTE, NEW DELHI

I.A.R.I. 6

GIPNLK—4/JDIARI/60—16-3-61—5,000

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED
BY THE
INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVIIth Year -- No. 7 — July, 1936

ROME
VILLA UMBERTO I
1936

The reproduction either in whole or in part of material printed in the ***International Review of Agriculture*** is permitted, but only on the express condition that the source is duly acknowledged.

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (203 E-234 E)

SOCIAL INCOME OF FARMS IN THREE STATES OF THE UNITED STATES OF AMERICA (ILLINOIS, IOWA, INDIANA) IN 1932-33 . . . . 203 E
THE ECONOMIC ASPECT OF THE WORLD PROBLEM OF THE PRODUCTION AND CONSUMPTION OF COFFEE . . . . . 216 E

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 232 E

AGRICULTURAL STATISTICS (457 S-532 S)

VEGETABLE PRODUCTION :—

Articles and summaries

Wheat . . . . 457 S

Information by countries

Cereals . . . . 462 S
Maize . . . . 473 S
Rice . . . . 475 S
Potatoes . . . . 476 S
Sugar . . . . 478 S
Vines . . . . 481 S
Olives . . . . 483 S
Flax . . . . 483 S
Cotton . . . . 484 S
Hemp . . . . 487 S
Hops . . . . 487 S
Tobacco . . . . 488 S
Other products:— .
- Cacao . . . . 488 S
- Tea . . . . 488 S
- Coffee . . . . 489 S
- Groundnuts . . . . . . 489 S
- Colza and sesame . . . 489 S
- Sericulture . . . . . . 490 S

Fodder crops . . . . 490 S
Supplementary figures . . . 495 S

LIVE STOCK AND DERIVATIVES :—

The pig crop in Germany . 497 S
Sheep numbers in Germany . 497 S
Pig population in Denmark . 498 S
Live stock in Switzerland . 498 S
Current information on livestock and derivatives . . 501 S
Latest Information . . . . . 501 S

TRADE :—

Wheat, rye . . . . 502 S
Wheat flour, barley . . . 503 S
Oats, maize . . . . 504 S
Rice, linseed . . . . 505 S
Butter, cheese . . . . 506 S
Cotton, wool . . . . 507 S
Coffee, tea . . . . 508 S
Cacao, total wheat and flour 509 S
Other trade statistics . . . 510 S

STOCKS :—

Cereals . . . . 511 S
Cotton . . . . 514 S

PRICES:—

Weekly prices by products . 515 S
Average monthly prices by countries . . . . 520 S
Average monthly prices in gold francs per quintal . . 524 S
Variations in the index numbers of prices . . . . . . 527 S
Exchange rates . . . . . . 526 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer . . . . 528 S
Supplementary information on prices . . . . 531 S
Reciprocal parities . 532 S

AGRICULTURAL SCIENCE AND PRACTICE (2

ORIGINAL ARTICLES:—

The utilisation of atmospheric nitrogen by mixed crop . . . . 241 T
New systems of olive pruning . . . . 256 T
Contribution to studies on sheep breeding in Turkey. 261 T

MISCELLANEOUS INFORMATION:—

Cereals . . . . 275 T
Forage Crops . . . . . . 276 T
Horticulture . . . . 276 T
Animal Husbandry . . . . 277 T
Forestry . . . . 277 T
BOOK NOTICES . . . . . . 278 T

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 289 T

PLANT PROTECTION (145 M - 168 M)

DISCOVERIES AND CURRENT EVENTS:—

Argentine Republic: *Melampsora larici-populina* in the Delta of Paraná. 145 M
Southern Rhodesia: Locust Invasion, 1932-36 . . . 146 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES:—

Germany . . . . 146 M
Germany (Bavaria) . . . 147 M
Germany (Hamburg) . . . 147 M
Germany (Oldemburg) . . 147 M
England . . . . 148 M
Angola . . . . 149 M
Argentine Republic . . . 150 M
Australia (Commonwealth of) . . . . 150 M
Belgium . . . . 155 M
Belgian Congo . . . . . . 155 M
Scotland . . . . 156 M
Spain . . . . 156 M
France . . . . 157 M
Latvia . . . . 157 M
Luxemburg (Grand Duchy of) . . . . 157 M
Morocco (French Zone) . . 158 M
Rumania . . . . 158 M
Uruguay . . . . 159 M
RECENT BIBLIOGRAPHY . . . 159 M

NOTES:—

Official Correspondents . . 168 M

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED
BY THE
INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVIIth Year — No. 8 — August, 1936

ROME
VILLA UMBERTO I
1936

The reproduction either in whole or in part of material printed in the *International Review of Agriculture* is permitted, but only on the express condition that the source is duly acknowledged.

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (235 E-274 E)

PRODUCTION AND CONSUMPTION OF AN EXTERNAL TRADE IN MEAT IN FRANCE 235 E

HAIL INSURANCE IN ITALY . 256 E

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS . . 270 E

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 272 E

AGRICULTURAL STATISTICS (533 S-620 S)

VEGETABLE PRODUCTION:—

Articles and summaries

Cereals . . . . 533 S

Sugar . . . . 556 S

Information by countries.

Cereals . . . . 541 S

Maize . . . . 550 S

Rice . . . . 552 S

Potatoes. . . . . 554 S

Sugar . . . . 559 S

Vines . . . . 561 S

Olives . . . . 563 S

Flax . . . . 564 S

Cotton . . . . 565 S

Hemp . . . . 570 S

Hops . . . . 570 S

Tobacco . . . . 570 S

Other products:—

- Cacao . . . . 571 S
- Tea . . . . 571 S
- Coffee . . . . 571 S
- Groundnuts . . . . . . 571 S
- Colza and sesame . . . 572 S
- Sericulture . . . . . . 572 S

Fodder crops . . . . 572 S

Supplementary figures . . . 591 S

LIVE STOCK AND DERIVATIVES:—

Live stock in Belgium . . . 575 S

Live stock in Czechoslovakia . 576 S

World trade in eggs in the shell . . . . 578 S

Current information on live stock and derivatives . . 590 S

TRADE:—

Wheat, rye . . . . 593 S

Wheat flour, barley . . . . 594 S

Oats, maize . . . . 595 S

Rice, linseed . . . . 596 S

Butter, cheese . . . . 597 S

Cotton, wool . . . . 598 S

Coffee, tea . . . . 599 S

Cacao, total wheat and flour . . . . 600 S

Other trade statistics . . . 601 S

STOCKS:—

Cereals . . . . 603 S

Cotton . . . . 607 S

PRICES:—

Regulation of cereal prices . . 609 S
Weekly prices by products . . 610 S
Variations in the index numbers of prices . . . . . . 615 S
Exchange rates . . . . . . 615 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer. . . . . 616 S
Supplementary information on prices . . . . 619 S
Reciprocal parities . . . . . 620 S

AGRICULTURAL SCIENCE AND PRACTICE (281 T-320 T)

ORIGINAL ARTICLES:-

Soya: Selection, classification of varieties, varieties cultivated in various countries . . . . . . 281 T
Recent progress in the technique of Agricultural machinery . . . . 297 T
Contribution to studies on sheep breeding in Turkey 304 T
MISCELLANEOUS INFORMATION . . . . 319 T
BOOK NOTICES . . . . . . 319 T

PUBLICATIONS RECEIVED BY THE LIBRARY.—

Books . . . . 319 T

PLANT PROTECTION (169 M-192 M)

DISCOVERIES AND CURRENT EVENTS:—

Argentine Republic: Further Contribution to the Study of the Disease Known as "Podredumbre de las Raicillas" of Orange Trees . . . . 169 M
Eritrea Locusts . . . . 171 M
Mozambique Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) . . . . 171 M
Southern Rhodesia: Locust Invasion, 1932-36 . . . 171 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES.—

Algeria . . . . 172 M
Germany. . . . . 172 M
Germany (Lübeck) . . . . 173 M
Germany (Oldenburg) . . 173 M
Germany (Prussia) . . . . 174 M
Germany (Thuringia) . . . 174 M
England and Wales . . . 174 M
Argentine Republic . . . 174 M
Australia (Commonwealth of) . . . . 174 M
Australia (Territory of Norfolk Island) . . . . . 175 M
Belgium . . . . 175 M
Chile . . . . 175 M
Belgian Congo . . . . . 177 M
Scotland . . . . 177 M
Spain . . . . 177 M
France. . . . . 177 M
Guatemala . . . . 178 M
Italy . . . . 178 M
Morocco (French Zone) . 179 M
Mexico . . . . 181 M
New Zealand . . . . . . 181 M
Salvador . . . . 181 M
Sweden . . . . 181 M
Tunis . . . . 181 M
RECENT BIBLIOGRAPHY . . 182 M

NOTES:—

Xth International Congress of European Beetroot-Growers . . . . 192 M

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED
BY THE
INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVII^th Year — No. 9 — September, 1936

ROME
VILLA UMBERTO I
1936

The reproduction either in whole or in part of material printed in the *International Review of Agriculture* is permitted, but only on the express condition that the source is duly acknowledged.

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (275 E-310 E)

PRODUCTION AND CONSUMPTION OF AND EXTERNAL TRADE IN MEAT IN FRANCE 275 E
THE MECHANISATION OF AGRICULTURE IN LATVIA . . . 293 E

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 307 E
Periodicals . . . . . . 308 E

AGRICULTURAL STATISTICS (621 S-692 S)

VEGETABLE PRODUCTION:—

Articles and summaries.

Cereals . . . . 621 S
Sugar . . . . 641 S

Information by countries.

Cereals . . . . 631 S
Maize . . . . 636 S
Rice . . . . 638 S
Potatoes. . . . . 639 S
Sugar . . . . 644 S
Vines . . . . 646 S
Olives . . . . 648 S
Flax . . . . 648 S
Cotton . . . . 650 S
Hemp . . . . 654 S
Hops . . . . 654 S
Tobacco . . . . 655 S

Other products:—

- Cacao . . . . 655 S
- Tea . . . . 656 S
- Coffee . . . . 656 S
- Groundnuts . . . . 656 S
- Colza and sesame . . . 657 S
- Jute . . . . 657 S
- Sericulture . . . . . . 657 S

Fodder crops . . . . 658 S
Supplementary figures . . . 666 S

LIVE STOCK AND DERIVATIVES:—

Pigs and cattle in Denmark. 661 S
Live stock in Great Britain and Northern Ireland. . . 662 S
Live stock in Greece . . . . 663 S
Live stock in Algeria . . . 664 S
Live stock in New-Zealand . 665 S
Wool production in the United States . . . . 665 S
Wool production in New-Zealand . . . . 665 S
Current information on Live stock and derivatives . . 666 S

TRADE:—

Wheat, rye . . . . 667 S
Wheat flour, barley . . . . 668 S
Oats, maize . . . . 669 S
Rice, linseed . . . . 670 S
Butter, cheese . . . . 671 S
Cotton, wool . . . . 672 S
Coffee, tea . . . . 673 S
Cacao, total wheat and flour 674 S
Other trade statistics . . . 675 S

STOCKS:—

Cereals . . . . 677 S
Cotton . . . . 679 S

PRICES:—

Weekly prices by products . 681 S
Variations in the index numbers of prices . . . . . . 686 S
Exchange rates . . . . . . 686 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer. . . . . 687 S
Supplementary information on prices . . . . 690 S
Fixing of Wheat prices in France . . . . 691 S
Reciprocal parities . . . . . 692 S

AGRICULTURAL SCIENCE AND PRACTICE (321 T-358 T)

ORIGINAL ARTICLES:—

The Action of Radiant Heat and Light Rays on the life of Plants. Heating and Forcing in the Open Air . . . . 321 T
Cereal Selection in Countries of the Mediterranean Basin: Turkey . . . . . 329 T
Contribution to Studies on Sheep Breeding in Turkey 339 T

MISCELLANEOUS INFORMATION 354 T

BOOK NOTICES . . . . . . 356 T

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 358 T
Periodicals . . . . 359 T

PLANT PROTECTION (193 M-216 M)

DISCOVERIES AND CURRENT EVENTS:—

Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) 193 M
Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) . . . . 194 M
Southern Rhodesia: Locust Invasion, 1932-1936 . . 194 M
Rumania: Diseases of Cultivated Plants Observed in 1934-1935 . . . . . 195 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES:—

England . . . . 197 M
Australia (South Australia) 197 M
Brazil (State of São Paulo) 199 M
Spain . . . . 199 M
Estonia . . . . 200 M
United States of America. . 200 M
France . . . . 201 M
British Guiana . . . . . 201 M
Italy . . . . 201 M
Italian Libya . . . . . . 202 M
Morocco (French Zone) . . 202 M
Turkey . . . . 202 M
Uruguay . . . . 204 M

RECENT BIBLIOGRAPHY . . 204 M

NOTES:—

Official Correspondents . . 216 M
A Plant Protection Section at the Hungarian Ministry of Agriculture . . . 216 M

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED

BY THE

INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVIIth Year — No. 10 — October, 1936

ROME
VILLA UMBERTO I
1936

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (311 E-338 E)

National statistics on farmer's indebtedness: the United States census and a new Swedish inquiry . . . . 311 E
International trade in meat . . . . 331 E
Bibliography on economic and social questions . . 336 E

Publications received by the Library.—

Books . . . . 337 E

AGRICULTURAL STATISTICS (693 S-788 S)

Vegetable production –

Articles and summaries

World wheat supplies and requirement . . . . 693 S
Sugar . . . . 724 S
Vines . . . . 729 S
Linseed . . . . 733 S

Information by countries

Cereals . . . . 711 S
Maize . . . . 719 S
Rice . . . . 721 S
Potatoes . . . . 722 S
Sugar . . . . 727 S
Vines . . . . 730 S
Olives . . . . 732 S
Flax . . . . 736 S
Cotton . . . . 736 S
Hemp . . . . 740 S
Hops . . . . 741 S
Tobacco . . . . 741 S

Other products:–

Cacao . . . . 742 S
Tea . . . . 744 S
Coffee . . . . 744 S
Groundnuts . . . . . . 744 S
Colza and sesame . . . 744 S
Sericulture . . . . . . 745 S
Fodder crops . . . . 745 S
Latest News . . . . 754 S

Live stock and derivatives:—

The pig crop in Germany . 747 S
Slaughterings in Germany . 748 S
Pigs in Denmark . . . . . 749 S
Poultry-rearing in France . 749 S
Livestock in Poland . . . . 750 S
Poultry in Czechoslovakia . 751 S
The livestock situation in Yugoslavia . . . . 751 S
Current information on live stock and derivatives . . 754 S

Trade: –

Wheat, rye . . . . 757 S
Wheat flour, barley . . . 758 S
Oats, maize . . . . 759 S
Rice, linseed . . . . 760 S
Butter, cheese . . . . 761 S
Cotton, wool . . . . 762 S

Coffee, tea . . . . 763 S
Cacao, total wheat and flour 764 S
Other trade statistics . . . 765 S

STOCKS.—

Cereals . . . . 767 S
Cotton . . . . 769 S

PRICES —

Weekly prices by products 771 S
Maritime freights . . . 775 S
Average, monthly prices by countries . . . . 776 S
Average monthly prices in gold francs per quintal . 780 S
Egg prices in Roermond . . 782 S
Variations in the index numbers of prices . . . . . 783 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer . . . . 784 S
Exchange rates . . . . . 787 S

AGRICULTURAL SCIENCE AND PRACTICE (361 T-404 T)

ORIGINAL ARTICLES

Action of Heat and Light Radiations on the Life of Plants Heating and Forcing Plants in the Open Air . . . 361 T
The A I V Process in Theory and Practice 371 T

MEDICINAL AND AROMATIC PLANTS

Resolutions adopted by the International Federation for the Development, Utilisation and Commerce of Medicinal, Aromatic and Similar Plants, during the Session at Munich, September, 1936 . 393 T

MISCELLANEOUS INFORMATION —

Resolutions adopted by the IInd World Forestry Congress Budapest, 10-14 September 1936 394 T

BOOK NOTICES . . . 402 T

PUBLICATIONS RECEIVED BY THE LIBRARY —

Books . . . . . . 403 T

PLANT PROTECTION (217 M-240 M)

DISCOVERIES AND CURRENT EVENTS —

Argentine Republic Locust Invasion during the Years 1935 and 1936 217 M
Eritrea. Locusts . . . . 218 M
Italy. Numerous Outbreaks of *Locusta migratoria* L ph *gregaria* (Typical) and Phases of Transition in the Province of Naples 218 M
Mozambique Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) 219 M
Southern Rhodesia Locust Invasion, 1932-1936 . 220 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES:—

French West Africa . . . 221 M
Germany . . . . 221 M
Germany (Bavaria) . . . 222 M
Germany (Free City of Dantzig) . . . . 222 M
Germany (Free City of Lübeck) . . . . 222 M
Germany (Mecklenburg) . . 222 M
Germany (Oldenburg) . . 222 M
Germany (Saar Territory) . 222 M
Argentine Republic . . . 223 M
Australia (Commonwealth of). . . . . 224 M
Australia (Western Australia) . . . . 224 M
Australia (Queensland) . 225 M
Belgium . . . . 225 M
Straits Settlements . . . . 225 M
Federated Malay States . 225 M
France . . . . 226 M
Hungary . . . . 226 M
Italy . . . . 226 M
Morocco (French Zone) . . 226 M
Mexico . . . . 227 M
New Zealand . . . . 227 M
Dominican Republic . . . 228 M
Rumania . . . . 228 M
Salvador . . . . 228 M

RECENT BIBLIOGRAPHY . . . 228 M

NOTES:—

Resolutions adopted by the IInd International Forestry Congress . . . 239 M

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED
BY THE
INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVII^th Year — No. 11 — November, 1936

ROME
VILLA UMBERTO I
1936

The reproduction either in whole or in part of material printed in the *International Review of Agriculture* is permitted, but only on the express condition that the source is duly acknowledged.

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (339 E-370 E)

INTERNATIONAL ORGANISATION OF THE RUBBER MARKET . . . . 339 E

FARM ACCOUNTANCY IN THE PUNJAB (INDIA) FROM 1927-1928 TO 1932-33 . . . . . 357 E

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS . . 365 E

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books. . . . . 367 E

AGRICULTURAL STATISTICS (789 S-864 S)

VEGETABLE PRODUCTION:—

Articles and summaries.

World wheat production . . 789 S

Potatoes. . . . . 803 S

Sugar . . . . 805 S

Vines . . . . 810 S

The world silk situation . . 827 S

Information by countries.

Cereals . . . . 792 S

Maize . . . . 800 S

Rice . . . . 802 S

Potatoes. . . . . 805 S

Sugar . . . . 808 S

Vines . . . . 812 S

Olives . . . . 814 S

Flax . . . . 814 S

Cotton . . . . 816 S

Hemp . . . . 819 S

Hops . . . . 820 S

Tobacco . . . . 820 S

Other products:—

Cacao. . . . . 821 S

Tea . . . . 823 S

Coffee . . . . 824 S

Groundnuts . . . . . . 825 S

Jute . . . . 826 S

Colza and sesame . . . 826 S

Fodder crops . . . . 834 S

Latest News . . . . 839 S

LIVE STOCK AND DERIVATIVES:—

Slaughterings in Germany . 837 S

Pigs in Denmark . . . . . 838 S

Current information on live-stock and derivatives . . 839 S

TRADE —

Wheat, rye . . . . 840 S

Wheat flour, barley . . . . 841 S

Oats, maize . . . . 842 S

Rice, linseed . . . . 843 S

Butter, cheese . . . . 844 S

Cotton, wool . . . . 845 S

Coffee, tea . . . . 846 S

Cacao, total wheat and flour. 847 S

Other trade statistics . . . 848 S

STOCKS:—

Cereals . . . . 850 S

Cotton . . . . 853 S

PRICES:—

Weekly prices by products . 855 S
Exchange rates . . . . . . 860 S
Variations in the index numbers of prices . . . . . . 860 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer. . . . . 861 S
Supplementary information on prices . . . . 864 S

AGRICULTURAL SCIENCE AND PRACTICE (405 T - 444 T)

ORIGINAL ARTICLES —

Monograph on Indian cotton situation, 1929-35 . 405 T
The development of small motors in Agriculture. . 421 T
Present state of the dairying industry in the various countries 8) Belgium . . . . 424 T
DIPLOMATIC CONFERENCE FOR THE CONCLUSION OF AN INTERNATIONAL CONVENTION FOR THE STANDARDIZATION OF HERDBOOKS 429 T

MISCELLANEOUS INFORMATION —

Tropical and subtropical crops . . . . 440 T
BOOK NOTICES . . . . . . 440 T

PUBLICATIONS RECEIVED BY THE LIBRARY —

Books . . . . 442 T

PLANT PROTECTION (241 M - 260 M)

DISCOVERIES AND CURRENT EVENTS —

Angola Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) . 241 M
Greece *Glyphodes* (*Margarodes*) *unionalis* on Olives 241 M
Mozambique Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) 242 M
Southern Rhodesia Locust Invasion, 1932-1936 . . 242 M
Turkey Some Insects Injurious to Cultivated Plants 243 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES —

Germany . . . . 243 M
Germany (Prussia) . . . . 243 M
Argentine Republic . . . 244 M
Canada . . . . 244 M
British Possessions . . . . 245 M
Estonia . . . . 245 M
France . . 245 M
Italy . . . . . . 246 M
Latvia . . . . 246 M
Morocco (French Zone) . . 246 M
Peru . . . . 248 M
Czechoslovakia . . . . . . 248 M
RECENT BIBLIOGRAPHY . . . 248 M

INTERNATIONAL REVIEW OF AGRICULTURE

PUBLISHED
BY THE
INTERNATIONAL INSTITUTE OF AGRICULTURE

XXVII^th Year — No. 12 — December, 1936

ROME
VILLA UMBERTO I
1936

The reproduction either in whole or in part of material printed in the *International Review of Agriculture* is permitted, but only on the express condition that the source is duly acknowledged.

CONTENTS

AGRICULTURAL ECONOMICS AND SOCIOLOGY (369 E-408 E)

STUDY OF THE RESULTS OF FARM ACCOUNTANCY IN SCOTLAND IN 1932-33 AND 1933-34 . . . . 369 E

PROTECTION OF AGRICULTURAL PRODUCTION AND OF THE EXPORT OF AGRICULTURAL PRODUCTS IN SOME SOUTH AMERICAN COUNTRIES: RESULTS OF THIS POLICY . . 382 E

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS . . 401 E

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 404 E

Periodicals . . . . . . 406 E

AGRICULTURAL STATISTICS (865 S-952 S)

VEGETABLE PRODUCTION.—

Articles and summaries.

The results of the cereal crops 865 S

World maize production and trade . . . . 879 S

Sugar . . . . 897 S

Vines . . . . 900 S

The world statistical situation of linseed . . . . 905 S

Information by countries.

Cereals . . . . 871 S

Maize . . . . 892 S

Rice . . . . 894 S

Potatoes. . . . . 896 S

Sugar . . . . 897 S

Vines . . . . 902 S

Olives . . . . 904 S

Flax . . . . 912 S

Cotton . . . . 913 S

Hemp . . . . 916 S

Hops . . . . 917 S

Tobacco . . . . 917 S

Other products:—

Cacao . . . . 918 S

Tea . . . . 919 S

Coffee . . . . 920 S

Groundnuts . . . . . . 920 S

Colza and sesame . . . 921 S

Sericulture . . . . . . 921 S

Fodder crops . . . . 921 S

Latest News . . . . 928 S

LIVE STOCK AND DERIVATIVES:—

Pigs in Denmark . . . . . 925 S

Livestock and beehives in Estonia . . . . 925 S

Livestock in Italy . . . . . 926 S

Poultry and beehives in Latvia . . . . 926 S

Livestock in Norway . . . . 926 S

Livestock in the Soviet Union. 926 S

Current information on livestock and derivatives . . 927 S

TRADE:—

Wheat, rye . . . . 930 S

Wheat flour, barley . . . . 931 S

Oats, maize . . . . 932 S

Rice, linseed . . . . 933 S
Butter, cheese . . . . . . 934 S
Cotton, wool . . . . 935 S
Coffee, tea . . . . 936 S
Cacao, total wheat and flour. 937 S
Other trade statistics . . . 938 S

STOCKS:—

Cereals . . . . 939 S
Cotton . . . . 941 S

PRICES:—

Weekly prices by products . 943 S
Exchange rates . . . . 948 S
Variations in the index numbers of prices . . . . . . 948 S
Index-numbers of prices of agricultural products and of commodities bought by the farmer . . . . 949 S
Supplementary information on prices . . . . 952 S

AGRICULTURAL SCIENCE AND PRACTICE (445 T-480 T)

ORIGINAL ARTICLES:—

Contrat between the international trade in agricultural machines and in the technical progress made in their manifacture . . . . 445 T
Scientific management in rabbit breeding . . . . 453 T
Gorgonzola . . . . 458 T

MEDICINAL AND AROMATIC PLANTS . . . . 466 T

MISCELLANEOUS INFORMATION:—

Genetics . . . . 467 T
Viticulture . . . . 469 T
Tropical and subtropical crops . . . . 472 T

BOOK NOTICES . . . . 473 T

PUBLICATIONS RECEIVED BY THE LIBRARY:—

Books . . . . 477 T
Periodicals . . . . 478 T

PLANT PROTECTION (261 M-288 M)

DISCOVERIES AND CURRENT EVENTS:—

Angola: Locust Movements (*Nomadacris semptemfasciata* and *Locusta migratoria migratorioides*) . . 261 M
Australia: The Plague Grasshopper in Queensland . 261 M
Eritrea: Locusts . . . . . 262 M
India: Some New Diseases of Sugar Cane Discovered in the Punjab . . . 262 M
Southern Rhodesia: Locust Invasion, 1932-1936 . . 262 M

LEGISLATIVE AND ADMINISTRATIVE MEASURES:—

England. . . . . 263 M
Argentina Republic . . . 265 M
Australia (South Australia) 265 M
Australia (West. Australia) 265 M
Austria (Confederation) . . 266 M
Austria (Salzburg) . . . . 267 M
Austria (Vorarlberg) . . . 267 M
Belgium . . . . 267 M
Chile . . . . 268 M
United States of America. 269 M
Hungary . . . . 269 M
Luxemburg (Grand Duchy of) . . . . 269 M
Philippine Islands . . . . 269 M
Portugal. . . . . 269 M
Rumania. . . . . 272 M
Tunis . . . . 272 M
Uruguay . . . . 272 M

RECENT BIBLIOGRAPHY . . . 273 M

AGRICULTURAL ECONOMICS AND SOCIOLOGY

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

SOCIAL INCOME OF FARMS IN THREE STATES OF THE UNITED STATES OF AMERICA (ILLINOIS, IOWA, INDIANA) IN 1932-33 (1)

In the April 1936 number of the *Monthly Bulletin of Agricultural Economics and Sociology* a study appeared of the variations occurring in the social income and its components from 1927-28 to 1931-32 in a large proportion of the European countries. Data are also available as to the social income in countries outside Europe, especially in the United States of America, and it has been felt that an article embodying these particulars would present interest.

The social income, as is well known, is one of the most important values which can be calculated by means of farm accountancy. It is obtained by deducting from the gross return the working expenses properly so called, *viz.*, the farm expenses apart from the labour costs and the taxes. That which remains is the recompense which the cultivator receives for the utilisation by him of labour and capital as necessitated in the farming of his land, and as well the recompense received by public institutions for their services rendered to the cultivator. A portion of this income, greater or less according to the size of the farm, remains in the hands of the cultivator; the name given to this share of the social income is the operator's return or the family farm income. It is moreover a matter of concern to the cultivator to ascertain the fraction of the social income which will be available for his own use without entrenchment on his own or family capital, leaving capital sums intact. Economists for some time past have proved that the smaller the farm the larger per unit of area is the social income. Relatively to the level reached by the social income, the family farm income will be larger, the smaller the area of the farm, because the more limited is the area farmed, the lower the labour costs will fall and the more considerable will be the wage claim for the labour of the operator and family. On very large farms, the operator and his family take no part at all in the work of the farm.

---

(1) " Hitherto the social income has scarcely ever served to measure the success and the profitableness of single farms or of groups of farms. To day, to measure the return of a farm use is rather made of the total income: the old units of measurement (net return, etc.) no longer suffice. But while it is more and more occupying a position in the front rank, that does not mean that the other units of measurement must disappear Their utility depends on the posing of the question." (Dr. H. L. FENSCH, Das volkswirtschaftliche Einkommen aus der Landwirtschaft. Berlin 1936. Introduction, *passim*).

Nearly all the American farms the social income of which will be here under consideration belong to the category of large farms; it will thus not be surprising if it appears that the social income per hectare is low. With this will be compared the components of the social income of the large European farms, which most closely resemble those of the social income of the American farms, and the essential differences will be noted.

The amount of the social income depends in the first place on the size of the gross return, then on the extent of the working expenses: purchases of seed, fertilisers and stock feeds, repairs to buildings and machines, insurances, amortisation and ordinary expenses; or equally on the size of the net return, the taxes and labour costs, which comes to the same thing, since the net return is obtained by deducting from the gross return the farm expenses (working costs plus labour costs and taxes), while to add to the net return the labour costs and taxes is to eliminate them from the farm expenses (see Table I).

An examination may now be made of Table I and II taken together; the object being to discover the causes for the variations in amount per unit of area of the social income of groups of farms belonging to the systems of production and to regions indicated, and the reasons for the variation in the proportion of the social income which falls to the operator.

(*A*) FARMS OF ILLINOIS.

(a) *General farming (corn).*

The farms of the second group have a gross return of 28 gold francs per hectare lower than that of the farms of the first group: the difference is due to the irregularity in the return from maize growing. The farm expenses being the same for the two groups, the advantageous position of the net return and of the social income of the farms of the first group as compared with the second group is exclusively due to successful crop production. While, in the first case, the farmer is enabled to retain for his use more than half the social income, in the second case, not more than 18 per cent. is left for him.

(b) *Dairying.*

It is at once clear why the farms of the second group have an earning capacity inferior to that of the first group; these latter have had expenses for purchases of feed three times as high as the former. The farms of the third group, although their expenses are less, have a gross return which is 70 francs per hectare lower than that of the two first groups, and the social income sinks to a level appreciably lower. The farms of the fourth and fifth groups bought nearly as much feed as those of the second group, but have not had an equally satisfactory reward for effort; the milk production is low. Also, while the farms of the three first groups leave in the hands of the cultivator 44 to 52 per cent. of the social income, the farmer of De Kalb county retains little more than a fourth; farmers in the counties of Winnebago and Stephenson obtain a negative operator's return, which means that they must encroach on their own capital to meet the sum due to their creditors.

(c) *General farming (wheat and corn).*

Farms of the first, third, fifth and sixth groups secured about the same social income. Those belonging to the fifth and sixth groups are, so to speak, sister farms; the same height of gross return and of farm expenses, the same distribution of the components of the gross return and of farm expenses.

The gross return of the farms of the first group stands at the same level as that of those of the fifth and sixth, and as the farm expenses of the former are not so high their social income would be larger if this reduction in expenditure related rather to the working expenses than to the labour costs. As regards the gross return of the farms of the third group, it is smaller than that of the other groups mentioned above, but the farm expenses and the working expenses in particular are also lower.

The farms of the second and the fourth group have a social income closely approaching the average social income or coinciding with it. Those of the second group have a gross return higher than that of all the farms growing wheat and maize, but have very considerable working expenses; the farms of the fourth group have lost ground from the fact of too small gross returns.

It remains to consider the farms of the eighth and seventh groups: these have secured a social income lower than the average. The reason for this may be found in the deficiency in gross return.

On the farms of the first and seventh group it is possible for the cultivator to retain nearly half the social income for his own use, the former because they have not allowed the interest return on the family capital to fall too low; the latter because they have employed very little labour and a great deal of family labour. On the farms of the second and of the third groups, the farmer's income represents 33 to 40 per cent. of the social income; this also depends on the extent of the family labour. On the farms of the fourth, fifth and sixth groups, the outside labour costs are too high in comparison with the family labour remuneration; on the farms of the eighth group both the outside labour costs and the taxes are too high. None of these farms leave the cultivator more than a share of the social income ranging between 8 and 17 per cent.

(d) *Beef and hogs breeding farms.*

Farms of the third group would have yielded a much higher social income if they had not made unduly large purchases of stock feeds—actually amounting to 30 gold france per hectare above the average of all the farms grouped under (d)—since they show a gross return exceeding by 40 gold francs the average gross return of the group. They were outstripped by the farms of the first group which had less heavy expenses. The farms of the second group had lower expenses still, and as the gross return did not fall in the same proportion, the social income was maintained, together with that of the farms of the first and third groups, above the average social income. For the remaining four groups, the gross return was too low for it to be possible to secure a social income as high as that of the farms of the three first groups.

TABLE I. — *Gross Return, Farm Expenses, Social Income. in 1932-33 (in gold francs per ha).*

CLASSIFICATION	Number of farms	Average area ha	ANIMAL PRODUCTION					Crop production various branches	Total Gross return	Net return	Labour costs	Taxes	Social income	WORKING EXPENSES		Farming expenses
			CATTLE		Pigs	Other stock	Total							Seeds, fertilisers, fodder	Other expenses	
			Slaughter stock	Milk and milk products												
			1	2	3	4	5	6	7	8 (7 — 14)	9	10	11 (8 + 9 + 10) or (7—12+13)	12	13	14
A) ILLINOIS FARMS.																
(*a*) General farming (corn):																
(1) Christian	30	110 07	10	15	33	4	62	47	109	7	45	19	71	—	38	102
(2) Edgar, Douglas, Coles, Moultrie	34	114 20	26	11	28	6	71	10	81	- 20	44	20	44	—	37	101
Average	*64*	*112 27*	*18*	*13*	*30*	*6*	*67*	*27*	*94*	*- 7*	*44*	*19*	*56*	—	*38*	*101*
(*b*) Dairying.																
(1) Kendall, du Page, Cook, Lake, Kane	51	78 63	12	128	23	16	179	6	185	0 2	71	26	97.2	19	68 8	184 8
(2) Will	37	78 22	—	134	22	22	178	3	181	- 14	69	19	74	48	59	195
(3) Boone, McHenry	30	80 68	27	56	19	12	114	3	117	- 13	57	15	59	2	56	130
(4) De Kalb	50	80 61	36	42	40	16	134	2	136	- 30	58	23	51	27	58	166
(5) Winnebago, Stephenson	35	70 80	25	44	39	11	119	3	122	- 52	58	18	24	43	55	174
Average	*203*	*80 43*	*21*	*82*	*29*	*15*	*147*	*4*	*151*	*- 21*	*63*	*21*	*63*	*27*	*61*	*172*
(*c*) General farming (wheat and corn)																
(1) Clark, Crawford	30	84 71	14	13	36	22	85	2	87	- 16	46	12	42	11	31	103
(2) Pike, Brown	30	100 41	25	9	50	7	91	3	94	- 21	44	16	39	22	33	115
(3) Scott	42	84 13	8	25	31	10	74	3	77	- 25	52	14	41	2	34	102
(4) Jersey, Macoupin	32	112 01	11	4	32	6	53	14	67	- 24	44	17	37	—	30	91
(5) Sangamon	32	102 38	21	17	37	7	82	2	84	- 27	49	20	42	2	40	111
(6) Morgan, Greene	51	101 65	13	17	50	6	86	2	88	- 28	52	17	41	8	39	116
(7) Effingham	31	80 37	6	16	8	17	47	3	50	- 28	41	8	21	7	22	78
(8) Mason, Cass, Menard	35	95 38	15	12	29	8	64	5	69	- 35	46	19	30	—	39	104
Average	*286*	*95 12*	*14*	*14*	*36*	*6*	*73*	*5*	*78*	*- 26*	*47*	*16*	*37*	*6*	*35*	*104*
(*d*) Beef and hogs																
(1) McDonough	30	89 72	23	13	59	11	106	3	109	- 20	52	17	49	15	45	120
(2) Waren, Bureau, Henry	41	98 94	34	10	40	7	91	1	92	- 25	48	17	40	9	43	117
(3) Hancock	44	97 32	46	11	65	10	132	2	134	- 26	52	19	45	45	44	160
(4) Mercer	30	79 76	15	0	43	9	76	3	79	- 25	48	15	38	5	36	104
(5) Fulton, Schuyler, Peoria	30	81.91	5	15	51	8	79	4	83	- 31	50	16	35	9	39	114
(6) Henderson	41	82 96	12	7	43	7	69	2	71	- 36	46	17	27	8	36	107
(7) Adams	30	85 14	14	10	36	10	70	4	74	- 37	49	15	27	9	38	111
Average	*246*	*88.76*	*24*	*11*	*49*	*8*	*92*	*3*	*95*	*- 28*	*49*	*17*	*38*	*16*	*41*	*123*
(*e*) Wheat and dairying:																
(1) St Clair	30	64 02	3	36	19	28	86	27	113	- 21	70	14	63	—	50	134
(2) Randolf, Monroe, Washington	39	81 30	4	35	9	16	64	6	70	- 23	47	10	34	—	36	93
(3) Bond, Montgomery, Shelby	38	60 86	—	55	21	21	97	9	106	- 36	62	15	41	11	54	142
(4) Madison	30	92.27	15	18	21	9	63	3	66	- 35	52	14	31	—	35	101
(5) Clinton	30	67.22	—	39	8	21	68	7	75	- 42	61	11	30	—	45	117
Average	*167*	*72.99*	*5*	*36*	*9*	*14*	*64*	*19*	*83*	*- 31*	*57*	*13*	*39*	*2*	*42*	*114*

CLASSIFICATION	Number of farms	Average area ha.	ANIMAL PRODUCTION											WORKING EXPENSES		Farming expenses
			CATTLE		Pigs	Other stock	Total	Crop production various branches	Total Gross return	Net return	Labour costs	Taxes	Social income	Seeds, fertilisers, fodder	Other expenses	
			Slaughter stock 1	Milk e milk products 2	3	4	5	6	7	8 (7 — 14)	9	10	11 (8 + 9 + 10) or (7—12+13)	12	13	14
(*f*) Mixed farming:																
(1) White, Wabash, Edwards, Saline	30	81.54	5	12	23	14	54	3	57	- 22	40	11	29	—	28	79
(2) Jefferson, Jackson, Richland	39	71.87	1	19	8	12	40	4	44	- 34	44	8	18	—	26	78
Average	*69*	*76.07*	*3*	*16*	*14*	*13*	*46*	*4*	*50*	*- 29*	*42*	*10*	*23*	—	*27*	*79*
(*g*) Grain farming.																
(1) Champaign	31	91 74	8	10	18	6	42	41	83	- 29	49	23	43	—	40	112
(2) Macon, De Witt, Logan, Piat.	53	101 53	13	14	14	9	50	28	78	- 31	45	22	36	—	42	109
(3) Iroquois, Kankakee, Vermilion	37	94 73	7	20	16	12	55	17	72	- 37	48	21	32	—	40	109
(4) Ford	30	106 92	6	14	17	9	46	17	63	- 40	45	19	24	—	39	103
Average	*151*	*98.92*	*9*	*15*	*16*	*9*	*49*	*26*	*75*	*- 34*	*46*	*22*	*34*	—	*41*	*109*
(*h*) Mixed live stock:																
(1) Ogle, Lee	36	91 21	36	21	31	11	99	1	100	- 33	51	20	38	13	49	133
(2) Rock Island	30	76 12	17	19	50	10	96	4	100	- 40	57	20	37	15	48	140
(3) Whiteside, Caroll	32	62 56	24	37	48	16	125	4	129	- 43	68	17	42	32	55	172
(4) Jo Davies	30	90 16	4	30	28	11	73	6	79	- 48	53	13	18	20	41	127
Average	*128*	*80 26*	*21*	*26*	*38*	*11*	*96*	*4*	*100*	*- 41*	*57*	*17*	*33*	*19*	*48*	*141*
B) IOWA FARMS.																
Farms of the Centre	87	94.29	34	17	50	9	110	31	141	— 52	39	20	7	19	115	103
C) INDIANA FARMS.																
Dairy farms of North-West	23	112.90	25	30	26	26	107	17	124	25	15	18	58	14	52	99
Pasture and grain farms of Kankakee.	107	58.68	4	39	40	28	111	21	132	25	13	22	60	16	56	107
Mixed dairy farms of North East	47	80.13	—	79	24	19	122	16	138	21	16	25	62	16	60	117
Cash grain farms of West	51	89.84	14	21	17	13	65	2	67	15	8	13	36	12	19	52
Mixed farming of the Centre	53	80.53	3	14	58	16	91	11	102	15	11	21	47	17	38	87
General farming of the North-East	113	64.75	10	49	32	34	125	20	145	22	16	23	61	22	62	123
Wheat and corn farms of South-West.	250	81.34	7	23	52	22	104	24	128	20	14	25	59	20	49	108
Hill farms of the South	26	82.55	1	30	38	20	89	32	121	17	21	25	63	16	42	104
Other farms	40	107 64	5	17	41	12	75	25	100	8	12	27	47	10	43	92
Average	*710*	*78.51*	*7*	*31*	*41*	*23*	*102*	*19*	*121*	*19*	*14*	*23*	*56*	*17*	*48*	*102*

TABLE II. — *Percentage Composition of the Social Income in 1932-33.*

CLASSIFICATIOM	Number of farms	Average area in ha.	INCOME PASSING TO THIRD PARTIES				OPERATOR'S RETURN			Social income
			Taxes %	Interest on debts %	Wages of employees %	Total %	Wage claim for work of family %	Return on own capital %	Total %	%
A) ILLINOIS FARMS.										
(*a*) General farming (corn):										
(1) Christian	30	110 07	26.62	—	17 24	43 86	45.53	10.61	56.14	100
(2) Edgar, Douglas, Coles, Moultrie . . .	34	114.20	46 69	—	34 99	81.68	64 41	- 46 09	18.32	100
Average . . .	*64*	*112 27*	*35 01*	—	*24.69*	*59.70*	*53.39*	- *13.09*	*40.30*	*100*
(*b*) Dairying:										
(1) Kendall, Du Page, Cook, Lake, Kane.	51	78 63	27 08	—	22 45	49 53	50 26	0 21	50 47	100
(2) Will	37	78 22	26 16	—	30 33	56 49	62 39	- 18.88	43 51	100
(3) Boone, McHenry . .	30	86 68	26 20	—	21 58	47 78	74 76	- 22.54	52 22	100
(4) De Kalb	50	80 61	45 30	- -	27 06	72 36	86 47	- 58 83	27 64	100
(5) Winnebago, Stephenson	35	79.80	72 35	—	48 43	120.78	190 32	- 211.10	- 20 78	100
Average . . .	*203*	*80 43*	*33 37*	—	*26 62*	*59 99*	*72 96*	- *32 95*	*40.01*	*100*
(*c*) General farming (wheat and corn)										
(1) Clark, Crawford . .	30	84 74	26 92	—	24.19	51 11	86 18	- 37 29	48 89	100
(2) Pike, Brown	30	100 44	41 79	—	25 47	67.26	89 22	- 56 48	32 74	100
(3) Scott	42	84 13	34 18	—	26 20	60.38	101.28	- 61 66	39 62	100
(4) Jersey, Macoupin . .	32	112 01	46 58	—	36 00	82 58	81.72	- 64 30	17 42	100
(5) Sangamon	32	102 38	48 35	—	42 44	90 79	74 60	- 65 39	9 21	100
(6) Morgan, Greene . .	51	101 65	40 58	—	42 99	83 57	85 07	- 68 64	16 43	100
(7) Effingham	34	80 37	37.40	—	14 95	52 35	184 81	- 137.16	47 65	100
(8) Mason, Cass, Menard	35	95 38	61 83	—	30 50	92 33	122 14	- 114 47	7 67	100
Average . . .	*286*	*95 12*	*42.13*	—	*32 77*	*74 90*	*95.53*	- *70.43*	*25.10*	100
(*d*) Beef and hogs:										
(1) McDonough.	30	89 72	33.88	—	26 16	60.04	80.44	- 40 48	39.96	100
(2) Waren, Bureau, Henry	41	98.94	42.43	—	27 29	69 72	92 60	- 62.32	30 28	100
(3) Hancock	44	97 32	41 89	- -	38 68	80 57	76 31	- 56.88	19 43	100
(4) Mercer	30	79.76	40 25	—	20 06	60 31	105 98	- 66 29	39 69	100
(5) Fulton, Schuyler, Peoria	30	81.91	45 73	—	25 74	71.47	115.05	- 86.52	28.53	100
(6) Henderson	41	82 96	64.37	—	24 04	89.31	150 77	- 140.08	10.69	100
(7) Adams	30	85 14	54 61	—	33 59	88.23	150 79	- 139.02	11 77	100
Average . . .	*246*	*88 76*	*44.38*	—	*29.04*	*73.42*	*101.65*	- *75.07*	*26.58*	*100*
(*e*) Wheat and dairying:										
(1) St. Clair	30	64 02	22 48	—	21 50	43 98	89 57	- 33 55	56 02	100
(2) Randolf, Monroe, Washington. . . .	39	81.30	28 76	—	20 99	49.75	118 42	- 68.17	50.25	100
(3) Bond, Montgomery, Shelby	38	60 86	35 84	—	39 48	75.32	112 03	- 87.35	24.68	100
(4) Madison	30	92.27	44 26	—	34.44	78.70	134.96	- 113.66	21.30	100
(5) Clinton	30	67 22	36.96	—	37 47	73.43	163.88	- 137.31	26.57	100
Average . . .	*167*	*72.90*	*32.36*	—	*29.41*	*61.77*	*118.44*	- *80.21*	*38.23*	*100*

CLASSIFICATION	Number of farms	Average area in ha.	INCOME PASSING TO THIRD PARTIES				OPERATOR'S RETURN			Social income
			Taxes %	Interest on debts %	Wages of employees %	Total %	Wage claim for work of family %	Return on own capital %	Total %	%
(*f*) Mixed farming:										
(1) White, Wabash, Edwards, Saline . . .	30	81.54	38.30	—	25 34	63.64	110.85	- 74.49	36.36	100
(2) Jefferson, Jackson, Richland, Marion, Wayne, Clay, Johnson	39	71 87	43.39	—	17 76	61.15	226.17	- 187.32	38.85	100
Average . . .	*69*	*76.07*	*40.56*	—	*22 17*	*26.73*	*158.80*	*- 121.53*	*37.27*	*100*
(*g*) Grain farming:										
(1) Champaign	31	91.74	53 19	—	22 18	75.37	92 89	- 68.26	24.63	100
(2) Macon, De Witt, Logan, Piat	53	101.53	60.77	—	34.52	95.29	89.89	- 85.18	4.71	100
(3) Iroquois, Kankakee Vermilion	37	94.73	66.15	—	29.73	95 88	119.50	- 115.38	4.12	100
(4) Ford	30	106.92	81.93	—	41 62	123 55	145.50	- 169.05	- 23.55	100
Average . . .	*151*	*98.92*	*63 26*	—	*31 56*	*94.82*	*105.47*	*- 100.29*	*5.18*	100
(*h*) Mixed live stock:—										
(1) Ogle, Lee	36	91.21	40 25	—	26 49	66 74	134 45	- 101 19	33 26	100
			52 03		27 37	79.40	107.40	- 86.80	20.60	100
(2) Rock Island	30	76.12	53 68	—	26 69	80 37	129 41	- 109.78	19.63	100
(3) Whiteside, Caroll . .	32	62.56	40 25	—	26.49	66.74	136.45	- 103.19	33.26	100
(4) Jo Davies	30	90 16	68 76	—	48.97	117.73	248 14	- 265 87	- 17.73	100
Average . . .	*128*	*80.26*	*51 86*	—	*30 03*	*81.89*	*139 79*	*- 121 68*	*18.11*	100
(*B*) IOWA FARMS.										
Farms of the Centre . .	87	94.29	293.25	233.34	205.89	732.48	359.19	- 991.67	-632.48	100
(*C*) INDIANA FARMS.										
(1) Pasture and grain farming of Kankakee	23	112.90	31.95	5.59	21.09	58.63	4.26	37.11	41 37	100
(2) General farming of North-East	107	58 68	36.10	9 52	15 52	61.14	6.86	32 —	38.86	100
(3) Dairy farms of North-West	47	80 13	40.22	4 76	18 74	63 72	7.54	28.74	36.28	100
(4) Hill farms of the South. .	51	89 84	36 34	13 80	15 76	65.90	7.19	26.91	34 10	100
(5) Other farms	53	80.53	44.25	8.07	19.87	72 19	3.53	24.28	27.81	100
(6) Dairy farms and general farming of North-East .	113	64.75	37.11	12 59	17 82	67.52	9.48	23 —	32.48	100
(7) Mixed farms of Centre .	250	81.34	42.12	11.67	17 68	71.47	5.74	22.79	28.53	100
(8) Wheat and corn farms of South-West	26	82.55	39.95	7.54	26.25	73.74	6.65	19.61	26.26	100
(9) Cash grain farms of West.	40	107.64	57 66	8.26	22 26	88.18	2.54	9 28	11.82	100
Average . . .	*710*	*78.51*	*40.77*	*10.24*	*18.36*	*69.37*	*6.17*	*24.46*	*30.63*	*100*

The share of the social income ensured to the cultivator by beef and hogs farms is less than that yielded by the dairy farms, the farms growing corn and those growing wheat and corn. The farmers of counties McDonough and Hancock (first and fourth groups) are able to keep for themselves 40 per cent. of the social income; those of the second group 30 per cent.; those of the fifth group 28 per cent.; those of the fourth group 19 per cent., the costs of outside labour exceeding 10 per cent. of the average costs of paid labour. As regards the farmers of the sixth and seventh groups, the fact that their share of social income is not more than 11 per cent. is due to the very low interest return on the family capital.

(e) *Wheat and dairying.*

In order to secure the highest gross return, the farms of the first group had to employ a large quantity of outside labour. As the working expenses were quite normal, the social income is seen to be much in excess of the average social income (*viz.*, by 24 gold francs per hectare). The farms of the third group also secured a high gross return, but at the cost of excessively high working expenses; the social income is hardly more than the average social income. There is little to choose between the farms of the second, fourth and fifth groups. The social incomes obtained approximate very closely in each case.

The operator's return on the farms of the first and the second group is equivalent to about one half of the social income; that on the farms of the third, fourth and fifth groups represents no more than a fourth or even a fifth share of the social income. These differences are due, for the farms of the first fourth and fifth group, to the amount of the gross return; for those of the third group, to the extent of the working expenses. As regards the farms of the second group, although showing a gross return as low as the farms of the fourth and fifth groups, and incidentally a social income also low, their labour costs and especially the costs of paid labour, are much less considerable.

(f) *Mixed farming.*

The farms of the second group, on account of failure in pig raising, show a gross return and social income less than those of the farms of the first group. However, per 100 francs of the social income, the farms of the second group show a higher operator's return, owing to the fact that their costs of paid labour are much less.

(g) *Cash grain farms.*

There are no appreciable differences between the farm expenses of the groups belonging to this system of production. The amount of the social income depends on that of the gross return. The relation between the gross return, the social income and the work of the farmer's family is no longer satisfactory: the most favoured farms from this point of view—the farms of the first group—leave to the farmer only one fourth of the social income; those of the second and those of the third group do not allow him to take for his own use more than 4 per cent. of the social income. The farms of the fourth group gave an interest return on the family capital so low that the family farmer must draw on his own capital, 23 francs for every 100 of social income, in order to pay his creditors.

(h) *Mixed live stock farms.*

The social income is relatively low as the working expenses are at a high level owing to somewhat large purchases of feeds. The highest social income was obtained on the farms of the third group (Whiteside, Carroll), as these farms yielded a high gross return. As with the farms of the first group, one third of the social income remained for the cultivator on these farms. The position of the farms of the fourth group is very unsatisfactory; for every 100 francs of social income, the farmer has to draw 18 francs from his own capital to pay creditors; the gross return was too low.

(*B*) FARMS OF IOWA.

These farms gave in round figures a social income of 7 francs per hectare: the gross return is high but the working expenses are too large by far. The situation of the farmer is thus disastrous. The sum that represents the social income is not large enough to cover the total of the taxes, and payment for the interest on debts and for the labour engaged thus falls on the cultivator.

(*C*) FARMS OF INDIANA.

These farms are distinguished from those of the two regions previously treated less by the high level of the social income than by the components of the farm expenses. The net return, at first negative, becomes positive. The social income would be much higher than it actually is, if the labour costs were as large as in Illinois and in Iowa, and the farm expenses less high. If these latter had remained what they were in Illinois and if the labour costs had risen to the level of the same costs in Illinois, the net return would have become negative and the social income would not have shown any variation.

A social income higher than the average social income of the farms of Illinois is shown by the farms of the South-West growing wheat and maize, the dairy farms of the North-West, the mixed dairy farms of the North-East, the mixed farms of the Centre, the farms of multiple production of the North-East, and the pastoral and cereal yielding farms of Kankakee. It is these farms which have obtained the highest gross returns. Whenever the cereal yielding farms of the West, the farms of the Southern hills, and those included as " other farms " show a social income below the average the reason is that the gross return is lower than the average, while the working expenses are as considerable as those of farms with a higher gross return.

TABLE III. — *The Percentage Composition of the Social Income in 1932-33 in some regions of the United States and in Europe.*

CLASSIFICATION	Number of farms	Average area in ha.	INCOME PASSING TO THIRD PARTIES				OPERATOR'S RETURN			Social income
			Taxes	Interest on debts	Wages of employees	Total	Wage claim for work of family	Return on own capital	Total	
			%	%	%	%	%	%	%	%
(A) FARMS OF UNITED STATES.										
(a) *Illinois farms.*										
(1) General farming (corn) . .	64	112.27	35.01	—	24 69	59 70	53 39	- 13.09	- 40.30	100
(2) Dairying	203	80 43	33.37	—	26 62	59 99	72 96	- 32 95	- 40.01	100
(3) Wheat and dairying . . .	167	72 99	32.36	--	29.41	61 77	118 44	- 80.21	- 38 23	100
(4) Mixed farms	69	76.07	40 56	—	22 17	62 73	158 80	- 121.53	- 37 27	100
(5) Beef and hogs . . .	246	88.76	44.38	—	29 04	73 42	101 65	- 75 07	- 26.58	100
(6) General farming (wheat and corn)	286	95.12	42.13	—	32 77	74 90	95 53	- 70 43	- 25.10	100
(7) Mixed live stock	128	80.26	51 86	—	30 03	81 89	139 79	- 121 68	- 18 11	100
(8) Cash grain farms	151	98 92	63.26	—	31 56	94 82	105.47	- 100.29	- 5.18	100
(b) *Iowa farms.*										
Farms of the Centre . . .	87	94 29	293.25	233.24	205.89	732 48	359.19	- 99.167	-632.48	100
(c) *Indiana farms.*										
Average . . .	*710*	*78.51*	*40.77*	*10 24*	*18 36*	*69.37*	*6.17*	*24.46*	*30.63*	*100*
(B) EUROPEAN FARMS.										
DENMARK:										
Farms from 50 to 100 ha . .	76	65.20	7.87	—	45.41	53 28	22 27	24.45	46.72	100
Farms over 100 ha.	48	198.90	9 13	—	61 06	70.19	11.06	18.75	29.81	100
FINLAND:										
Farms from 50 to 100 ha. . .	77	73.73	2.64	14 66	51.67	68.97	11.87	19.16	31.03	100
Farms over 100 ha.	17	144.85	3.59	16.63	58.31	78 53	7.11	14.36	21.47	100
GERMANY:										
Forage growing farms:										
West, over 100 ha.	82	194 --	10.73	21.47	71.75	103.95	10.73	- 14.68	- 3.95	100
East, over 100 ha.	183	432 —	10.61	31.82	83.33	125.76	6.06	- 31.82	- 25.76	100

An operator's return higher that the average of such returns, that is to say, higher than 30 per cent. of the social income is yielded by the following groups of farms:

the pasture and grain farms of Kankakee;
the farms with multiple production of the North-East;
the hill farms of the South;
the dairy farms of the North-West;
the mixed farms of the North-East.

An operator's return lower than the average operator's return, that is lower than 30 per cent. of the social income is given by:

the farms of the South-West growing wheat and corn;
the mixed farms of the Centre;
the " other farms ";
the cash grain farms of the West.

The wheat and corn growing farms of the South-West show costs of outside labour; the mixed farms of the Centre, interest on debts; the " other farms " and the cereal yielding farms of the West, costs of outside labour, too high in relation to the social income.

Before finally leaving the tables it may be once again pointed out that the farms of Illinois, Iowa and Indiana for which accountancy results are available engage mainly in stock farming and outturn of live stock products.

It would be of great interest to institute a comparison between these farms and the European farms. This would involve an attempt to compare the groups of American farms and groups of European farms most nearly resembling each other and as nearly as possible of the same size. In our article entitled " Some Observations on Farm Accountancy Methods in the United States " which appeared in the February number of this *Bulletin* it was stated that the accountancy data supplied by the American Offices allow of the exact calculation of the net return and in consequence of the social income. There is accordingly full justification for placing side by side the percentage composition of the social income in the United States and that of the social income in respect of European farms.

The Iowa farms may be left out of count: the interest return on the family capital is too exceptionally low relatively to the other components of the social income to make it possible to draw any useful conclusions from a comparison between the percentages of the social income of this region and other percentages. The first observation that should be made will bear on the interest return on the family capital. Except in Indiana this stands at a much lower level in the United States than in Europe. In Germany where this return is negative it has not fallen so low as Illinois. Moreover the cultivator in Illinois has still the possibility of retaining for himself from 5 to 40 per cent. of the social income, where as his compeer in Germany is obliged to draw on his own capital a sum corresponding to from 4 to 26 per cent. of the social income to meet the payments due to his creditors. The reason for this is simple: the costs of paid labour are immensely higher, relatively to the social income, in Europe, and especially in Germany, than in the United States. It seems however that in the States for the most part it is the members of the family who cultivate the farms of from 50 to 100 hecares; in Europe on the farms of this extent it is the paid labour which is the most numerous. Owing to this distribution of the labour, the farms of Illinois and of Indiana leave to the cultivator a share of the social income as high as in Denmark or in Finland, and much larger than in Germany. It is the more clear that this result is due to this distribution of labour when it is observed that in the United States the taxes, taken as a percentage of the social income, are enormously higher than in Europe.

A number of other very interesting observations might be made by going into the details, but it is not desired to depart from the general lines already laid down. Without going further it may be stated that in using the relative figures there is complete justification for comparing the final results of the farms belonging to the different continents.

Joseph DESLARZES.

THE ECONOMIC ASPECT OF THE WORLD PROBLEM OF THE PRODUCTION AND CONSUMPTION OF COFFEE (*continuation*)

COLOMBIA.

After Brazil, though at a considerable distance, Colombia is the largest coffee producer in the world. The geographical conditions impose coffee growing in this American republic and make that plant the principal element in its agriculture. From the statistical tables given in the first part of this work we have the number of coffee trees in Colombia and the average production in the last four years. With the following figures relating to Colombian coffee exports the main data are thus complete.

Year	Exports of coffee in bags of 60 kgs
1835	2,592
1845	23,915
1855	34,393
1865	66,795
1875	76,011
1885	110,866
1895	358,341
1905	500,811
1915	1,129,849
1925	1,946,730
1931	3,017,399
1932	3,384,739
1933	3,464,388
1934	3,126,368

Colombia began exporting in 1835 with 2,592 bags of 60 kgs. We may observe the manner in which these exports have grown in ten year periods and in the last four years up to 1934.

The increase was continuous and accelerated after 1895 when the plantations began to yield abundant returns.

It is a fact that there is no serious coffee problem in Colombia, for the country succeeds in placing almost the whole of its production on foreign markets and limits its action to the continual defence of its prices and everything relating to the trade and technical side of the product. These tasks are confided to the National Federation of Coffee Producers (*Federación Nacional de Cafeteros*) which up to now has succeeded, as we have said, in avoiding repercussions on the country of the general anomalies of the world market occasioned by the overproduction in Brazil.

Indeed, the fact that production and trade have been able to show increasing vitality and to pass through the important crisis of recent years is due to the protective measures in all directions taken by the Federation or, at its request, by the State. It is indeed a considerable achievement of that body, to have succeeded in keeping up demand and in disposing, on relatively favourable conditions, of the whole of Colombian coffee production at a time when many other coffee producing countries lost ground.

In 1932, when the Brazilian revolution took place, a favourable moment occurred of which the Federation could take advantage. The prices of Colombian coffee, Medillin and Girardot, fluctuated on the New York market about 12 and 10 ½ centavos per pound respectively. The port of Santos, in Brasil, was blocked and afterwards closed as a result of the revolution. Coffee of the quality of Santos became scarce on foreign markets, which stimulated a price reaction in the mild coffees following the demand for them to substitute in mixtures of the Santos type. As a result Colombia saw the prices of its Medellin and Girardot rise by 35 per cent. During this period the Federation continued to manage and direct the producers, and it was the Federation which contributed to the maintaining of the high level which allowed all available quantities to be exported, for, on the termination of the revolution, when Brazil prepared to restore its market to normal, there was not a single bag left in Colombian ports.

Later, at the end of 1932 and up to June 1933 a period of serious depression occurred on the market. Brazil, seeking to regain what she had lost during the revolution and to re-establish her position on foreign markets, began to force exports by reducing the value of the currency and by starting to grant bounties. To counteract the depression the Federation took the following steps. Firstly, it opposed the policy, favoured by some sections of Colombian opinion, of stock holding and artificial rises in the price level, a policy which had had unfortunate consequences for Brasil. It had put into force the decree for regulating the types and marks of coffee, of which the immediate result was to stop the fall in prices. It set up new coffee stores in the interior of the country in order to help the spread of consumption. It considerably intensified its propaganda work abroad in aid of Colombian coffees. Once more the Federation saved the situation and succeeded in maintaining the price at a remunerative level and in stabilising the trade in coffee.

The Federation was then put to the test on the occasion of the American banking crisis of 1933 which profoundly shook the economic system of the United States and created everywhere a feeling of insecurity. On this occasion too the Federation succeeded in its defensive policy.

The best proof of the efficiency of this policy is given by the figures of the trade of Colombia. The most recent relate to the financial year 1934, the last year for which we have official data.

The total value of imports into the country amounted to 87,427,000 pesos. The value of coffee exports amounted to 82,460,000 pesos that is, 94.32 per cent. of the imports is covered by coffee alone.

Coffee constitutes the basic wealth of the country and, it is of interest to note, wealth which is widely distributed, for Colombia among all the coffee producing countries is the country in which the small estate is most widespread, as may be seen in the following table.

Number of trees in plantations	Number of plantations	Percentage of the total
Less than 5,000	129,556	86.75
5,001 to 20,000	16,921	11.33
20,001 to 60,000	2,226	1.49
60,001 to 100,000	324	0.22
Over 100,000	321	0.21
Total	149,348	100.00

That is, after the small plantations only 10 per cent. are of medium size, whilst only 0.50 per cent. are large plantations.

The quantity of coffee exported for 1934 amounted to 3,152,028 bags of 60 kgs. The distribution of Colombian coffee between the different consuming markets is as follows:

Country	Export of Colombian coffee (in bags of 60 kgs.)
United States	2,499,676
Germany	358,892
Netherlands	56,297
France	50,262
Italy	30,124
Sweden	16,978
Spain	14,787
Belgium	10,235
Great Britain and Northern Ireland	8,461
Norway	6,645
Denmark	6,178
Finland	5,649
Other countries	89,844
	3,152,028

It will be seen that the United States absorb 79.31 per cent. of the exports.

VENEZUELA.

The soil of Venezuela is, in the south and west, but an extension of Brazilian and Colombian lands, and, up to 1830, the year in which it acquired its full independence, Venezuela formed with Ecuador and Colombia one national territory created by Bolivar under the name of Great Colombia.

Coffee growing was introduced into this Republic in 1748 by the conquerors, but its cultivation remained stationary for many years until the lack of trade in the agricultural commodities produced in the country, due to the difficulties of maritime trade, which hindered the trade of the country with Europe, made evident the necessity of preferring for cultivation a product which can keep for a long time and can be adapted to the special conditions created by the scarcity and irregularity of the communications between the Republic and the European continent. It was then thought of intensifying the cultivation of coffee, relegating to second place that of cacao, which was at the time predominant but which did not lend itself as easily to transportation.

At the end of the 18th century the export trade in coffee was already beginning to have a certain significance, for at this time some 708 bags of 132 pounds (approximately 60 kgs.) were exported annually. Ten years later exports had reached already the level of 60,606 bags and from then onwards, except during the war of independence, exports increased continually, reaching their culminating point during the great war and declining thereafter.

On this question the Ministry of Finance of Venezuela gives the following figures:

Years	Export of coffee in bags of 60 kgs.
1786-1790 (average)	708
1810	60,606
1850	234,678
1901-05 (average)	715,000
1912-14 »	979,000
1915-23 »	868,906
1924-33 »	848,673

It is seen that production was continually developing. By the end of 1905 Venezuela held third place among the coffee producing countries and its production represented 6.7 per cent. of world production and 16 per cent. of the production of mild coffees. During this time the pest was ravaging the Dutch coffee plantations, causing a considerable diminution in their production, and Venezuela took second place. 19 per cent of the mild coffees consumed then came from Venezuela.

These figures however say nothing as to the possibilities of coffee production in the country. Of all the countries growing coffee it is incontestably the most primitive and backward in techinique. With fertile lands and excellent qualities of coffee and with natural conditions equal to and sometimes better than those in other countries, the yield reaches only 230 grammes, whilst in other American producing countries it exceeds 500 grammes on the average and in some fertile plantations of Caldas in Colombia it reaches up to 900 grammes and in Brazil up to 1,750 grammes.

From the beginning of the twentieth century up to 1925 coffee cultivation constituted the foundation of the national wealth of Venezuela, but in this latter year the exploitation of petroleum outweighed that of coffee. The consequences of this change are felt in the most thickly populated part of the country which is the area dominated by coffee plantations.

Thus we see that the economic problem in this country is due in large part to the backward state of the technique of cultivation, and to the introduction of the exploitation of petroleum, from which the country only receives an indirect benefit since it is in the hands of powerful foreign companies.

The government reacted to this situation chiefly by setting up experimental centres and centres of agricultural instruction. Beyond this, export premiums have been instituted and there has just been founded the Association of Coffee Cultivators with a purpose similar to that fulfilled by the important bodies that we have described in the cases of Brazil and Colombia. Recently the Government started a policy of commercial agreements with some countries and has already signed two, one with France and the other with Spain, which undoubtedly will assist the sale of Venezuelan coffee in these countries.

GUATEMALA.

Since the beginning of the twentieth century this Republic has occupied fourth place among the coffee producing countries. Owing to the state of fertility of the national territory coffee is not, as in other American republics, the fundamental product of the economic structure. In the temperate as in the tropical regions other products are of importance. Further the country is prosperous owing to the hard working character of the inhabitants and to the fact that there is available to them in their own land almost all the raw material which they need.

The cultivation of coffee was introduced into Guatemala at the end of the eighteenth century and has developed along the same lines as in almost all the South American countries; at first slowly by reason of the struggles for independence and the lack of communications with the export ports; then, towards the middle of the nineteenth century more rapidly, and around the year 1900 cultivation reached its maximum development which has been maintained up to the present time.

The government has always given considerable aid to the coffee cultivators and to the trade, as evidenced by the foundation of the Central Board for Coffee (*Oficina Central del Café*) which is the body directly charged with watching over the interests of the coffee cultivation and trade and with the task of suggesting to the Government appropriate measures for maintaining prices.

The following figures shew the development of the exports from Guatemala from 1850 to 1900.

Year	Exports (bags of 60 kgs)
1850	4,500
1870	100,000
1880	200,000
1890	500,000
1895	600,000
1900	750,000

During the first quarter of the present century the exports remained on the average at the level of 1900, and from 1925 up to the present time they have been maintained at about 800,000 bags.

Of this quantity of exports North America absorbs approximately 38 per cent. whilst 60 per cent. go to European destinations, the remainder, which is almost negligeable, being taken by the continent of Asia.

In Europe, Germany ranks first among the consumers of Guatemalan coffee, with a proportion of 18.69 per cent.; then come the Netherlands with 14 per cent. and Sweden and Czechoslovakia with 9 per cent. each.

The economic problem in regard to coffee in this republic is that of keeping the price of the product at a remunerative level and to this end the Government and the Central Coffee Board carry out all the appropriate measures. At present, prices, even though less than a year ago, are at a reasonable level which makes cultivation remunerative.

EL SALVADOR.

This is the smallest of all the Central-American republics but on the other hand has the densest population, there being 45 inhabitants to the square kilometre. It is a predominantly agricultural country and its activity in this direction is concentrated almost entirely on the cultivation of coffee, which is one of the most highly esteemed types of Central America.

Coffee cultivation and trade are governed in this country by the Producers' and Traders' Association of Salvador (*Associación Cafetera del Salvador*) a body which is dependent on the government and makes use, in its financial work, of the Mortgage Bank. To meet the expenses caused to these two bodies an import tax was imposed of 2.50 colones (1 colon = 0.50 dollars) per quintal. But the flourishing state of trade induced the government to reduce this tax in August 1935 to 0.82 colones per quintal exported.

As a result of the protection which has always been accorded to coffee cultivation, backward methods, and the deficiencies in industrial working of the products and in transport disappeared a long time ago. In such a small country as Salvador where the area under coffee cultivation is a very high proportion of the total cultivable area (according to the Statistical Yearbook of the International Institute of Agriculture 100,000 hectares were under coffee in 1934), all the economic interests of the country are closely bound up with the prosperity of coffee cultivation.

We show below the statistics of coffee exports in various years and the proportion that these represent of the total exports of the republic. Nothing could show more clearly the importance to El Salvador of its cultivation of coffee.

Year	Exports		Percentage of total exports
1911	25,561,602	kgs.	62
1921	28,311,988	»	80
1931	54,630,842	»	96
1932	49,654,898	»	93
1933	56,189,276	»	96
1934	49,387,444	»	93

HAITI.

Since 1844 this country has been an independent republic, having separated itself from the rest of the island of San Domingo, which became the independent Dominican Republic. But we may disregard this political event, for exports and everything else related to the cultivation of coffee in these two countries, have always, up to a recent date been dealt with in respect to the two countries together.

The island of San Domingo is one of the oldest and most important coffee producing countries. The statistics of export which are available shew an export of 250,000, in 1800, of 400,000 in 1850 and of half a million bags in 1880, a figure which has been maintained, with small variations, up to the present time.

Coffee is the most important agricultural product of the island and the foundation of its wealth. At present the country is suffering from the consequences of low prices, but the Official Bulletin of the Dominican Republic estimates that the profit at present obtained by the cultivator fluctuates around 0.3 cents per pound of coffee, which may be considered remunerative.

Both governments of these republics take the necessary measures for the protection of the cultivation of coffee. Thus Haiti has just renewed its agreement with France by virtue of which that country takes on the average thirty per cent. of the production, which assures of the marketing of a minimum of 25,000 quintals per month. Recently, severe measures were taken with the purpose of improving the product to make Dominican coffee more capable of facing competition in the markets. The government of San Domingo has just published a law which controls the coffee intended for exportation, the principles of which go from prescriptions as to growing, up to the selection of the product for export, which in the future will only leave the country if it possesses all the qualities required by the law for the granting of the special " San Domingo " mark.

MEXICO, COSTA RICA, NICARAGUA AND ECUADOR.

The group of large coffee producing countries is completed by Mexico, Costa Rica, Nicaragua and Ecuador. This last republic, which began to export, towards the end of the last century, an annual average of 20,000 bags, is, of these four countries, the smallest producer. In fact the statistics shew in 1913 an export from Ecuador of 50,000 bags which rose to 100,000 around 1920, a level which has more or less been maintained ever since. The other three countries are more important. The figures of production in Nicaragua are continually increasing. From the 20,000 bags in 1890 exports rose to 150,000 bags during the period immediately preceding the war. After the war the export figures fluctuated between 150,000 and 300,000 bags. The principal consumption markets of the coffees of these countries are in Europe. Of the 1934-35 harvest, which, according to official statistics published at Managua, was equal to 262,348 bags (of 150 pounds), France took 93,652 bags and Germany 52,104. The price, between 6.50 and 7.50 pesos per 100 pounds according to quality, fetched by the coffees of this republic, are somewhat low, but nevertheless may be regarded as remunerative.

Coffee is the foundation of the wealth of Costa Rica, and the Coffee Institute of that republic, which has control of all the aspects of cultivation, watches continually over its progress. The figures give evidence of the success of the activity of this official centre. In 1934 coffee represented 67 per cent. of the general export of the country. M. L. REGRAY indicates the following development of exports: in 1850 a level of 60,000 bags, in 1875, 175,000 bags, in 1890 rising to 200,000 and in 1914 to 250,000, and at present fluctuating between 325,000 and 350,000. Costa Rica lives entirely from its export trade of which the major part is, as we have seen, in coffee, which is the vital point of the economic structure of the country. From the figures published by the Coffee Institute an important decline in the prices of coffee from this country is observed. The good quality coffees of the 1933-34 harvest fetched 120 shillings per quintal in London, whereas the average price in the following year for the same coffee did not exceed 60 shillings per quintal. Thanks to the activity of the Institute Costa Rican coffee has recently been succesfully introduced on new markets (Japan, China, the northern countries and the Canary Islands). The only coffee producing country of North America is Mexico, which began about 1855 to export and which twenty years later, in 1875, already was exporting 50,000 bags of coffee. The progress of Mexican coffee production was rapid, attaining considerable levels of exports during the pre-war period, rising from 200,000 bags in 1890 to 350,000 bags immediately before the war. After the war, production decreased, but during recent years it has once more increased up to an average of 400,000 to 500,000 bags. This increase is the result of the continued assistance on the part of the government. Recently it was agreed to make an advance of approximately half a million pesos to intensify cultivation in the State of Chiapa, and of other sums to reduce the mortgages on a number of properties. By a commercial treaty concluded between Spain and Mexico there has been revoked a clause which had been to the disadvantage of the latter country. The imports of Mexican coffee into Spain had previously been limited to the sum of exports of all kinds from Spain to Mexico. Now this limitation has been removed, and a quota of 2,500,000 kgs. of Mexican coffee imports into Spain has been established.

This completes the group of the countries which may be called the large coffee producing countries, and we leave to the final part of this study those countries whose exports are less considerable. Before turning to this group we may outline some facts we have been able to obtain on the various colonial coffee producing countries.

COLONIAL COUNTRIES.

We have already seen in another part of this article, where we describe the world situation in coffee cultivation, the great expansion of that cultivation in the last ten years following upon the Brazilian policy which caused a large rise in the price of the product. Plantations in fact increased in size by over two thousand million coffee trees.

The disaster which ensued on the market has been a warning and probably Brazil and the other politically independent producing countries will stop further expansion of cultivation. Indeed all are abandoning monoculture in order to have other products to shelter them from an ever possible aggravation of the coffee problem.

We have just referred only to the countries which are independent from a political point of view, but it must not be forgotten that the total area capable of coffee cultivation is enormous, and that it includes the fertile soils of the colonial possessions. The possible expansion of cultivation under the protection of the metropolitan centre, where remunerative to the native and useful to that centre, might constitute a grave danger.

To the policy of assistance by which the independent countries seek to dispose of their coffee harvests and to maintain prices at a remunerative level, it is natural that there should correspond a similar policy on the part of the metropolitan centres, directed towards establishing colonial coffee plantations. This policy finds its clearest expression in the preferential duties which assist the trade of the colonies with the motherland. For the time being the price advantage which the colonial producers can obtain is not sufficient to induce them to extend their plantations. This diminishes the immediate danger on one hand and on the other—and this is the chief argument—the lack of labour raises great obstacles to the spreading of the coffee tree, in spite of the immense areas appropriate to their cultivation in the colonial territories.

We may now examine in turn the various colonial countries in which coffee is cultivated.

NETHERLANDS INDIES.

This region has been for a long time one of the largest coffee producers. It takes third place among the large coffee producing countries, coming immediately after Colombia. It contains 426 large plantations of which 303 on the island of Java are entirely worked by Europeans and 123 in the other provinces in the hands of natives and Europeans. Twenty five per cent. of these estates cultivate only coffee, the rest cultivate also other crops besides coffee. After Java, Sumatra is the principal centre of cultivation. The most widespread variety is the " Robusta " which covers 93 per cent. of the planted area. Then come " Arabica " and " Liberia. " The prominence of the first variety is due to the fact that the latter two were destroyed at the end of the last century by the *Hemileia* parasite, which checked the growth in production for many years. Before the invasion of the parasite in 1880 production was close on a million bags, whilst in 1895 only half that quantity was exported and in 1909 exports fell still more, according to the statistics, only reaching 250,000 bags. From then on there was a continuous rise, to 450,000 bags in 1913 and, in the last ten years from one million to two million bags. The production figures for the four years from 1929 to 1932 are as follows:

Year	European plantations (bags of 60 kgs)	Native plantations (bags of 60 kgs)	Total (bags of 60 kgs)
1929	921,334	975,883	1,897,217
1930	671,884	903,933	1,575,817
1931	812,417	908,317	1,720,734
1932	1,045,250	1,105,967	2,211,217

As to exports, the International Yearbook of Agricultural Statistics gives the following figure:

Year	European plantations. quintals	Native plantations. quintals	Total. quintals
1930-31	403,129	542,361	945,490
1931-32	487,452	544,980	1,032,432
1932-33	627,146	699,576	1,326,722
1933-34	567,021	497,421	1,064,442

This total in quintals converted into bags of 60 kgs. represents about 80 per cent. of the production figures. Consumption of coffee is widespread among the natives.

The principal market to which the product goes is naturally that of the Netherlands. Then comes France followed by the Scandinavian countries. The coffee does not appeal in the United States and the imports into that country were only 211,000 bags in 1929, 83,500 in 1930 and 80,700 in 1931. In 1932 the imports into the United States increased considerably, up to 440,000 bags owing to the cessation of shipments from Santos, but in 1933 they fell to 87,000 bags.

BRITISH POSSESSIONS AND PROTECTORATES.

We may begin with British East Africa, since the territories of Kenya, Uganda and Tanganyika are the largest coffee producers.

(*a*) *Kenya.* — Coffee cultivation in this region was begun in 1893 but the commercial plantations only date from 1909, a period during which began to arrive on the English market the mild coffees of Kenya, which received a very good welcome. This fact was immediately reflected in the plantations and in 1914 2,226 hectares had already been planted almost all in the Kiamba region. In this latter year coffee represented only 9 per cent. of the total of agricultural products exported. The great war checked its cultivation until, in 1918, the government of the colony took measures to increase it. In 1924 the area cultivated reached 24,303 hectares and the value of the exports 36 per cent. of the total exports. Progress continued and in 1928 the area cultivated rose to 34,000 hectares and the percentage of exports in the total exports rose to 50 per cent. The last figures given by the Department of Agriculture of the Colony and of the Protectorate of Kenya are those for 1934, which record a cultivated area of 41,374 hectares. Other facts of interest relate to the number of plantations which stands at 929 with an average size of 44.5 hectares.

Almost all the coffees cultivated in Kenya are of the "Arabica" variety.

Up to a short time ago everything relating to the cultivation and trade in coffee was in the hands of the Kenya Union of Coffee Planters but recently the Coffee Board was established. The Union and the Board study the best ways of introducing good methods of cultivation and the best way of preparation to combat the rather pronounced tendency of the coffee of the region to deteriorate. Beyond this the two bodies carry on intense propaganda for the product. The Coffee Board is maintained and covers its expenses by means of a tax of 6*d.* per cwt. on that coffee the growing and marketing of which has been assisted by its activity.

The average production of the last two harvests in Kenya was 248,185 bags of 60 kgs.

(b) *Uganda.* — The introduction of coffee growing in the Protectorate of Uganda is a recent event, and the comparative experiments made on the two varieties, Robusta and Arabica, have just been finished, preference being given the former because of its greater resistance to disease and its better adaptation to climate. In 1931 the Arabica variety was cultivated on an area of 7,420 hectares and the Robusta on an area of 8,450 hectares. In the following years the latter made considerable progress.

The Uganda Department of Agriculture has established a service of inspection and classification for coffees for export which looks efficiently after the interests of the producers.

The last figures available of the area under cultivation are those of the financial years 1932-33 and 1933-34, which give an annual average of production of 79,387 bags, of 60 kgs. whilst the area under cultivation equalled 17,029 hectares.

(c) *Tanganyika.* — In view of the similarity of all these regions of East Africa, we may summarise the data relating to Tanganyika. There the varieties Robusta and Arabica are produced, the first being preferred in the Bulcoba district, the second in the other districts. In 1931 the cultivated area under coffee was 47,359 hectares. The average production during 1932-33 and 1933-34 reached the figures of 215,400 bags of 60 kgs. In the Department of Agriculture there is a section which controls cultivation, preparation and exportation and, thanks to the work of the experimental coffee station at Kilimanjaro all the coffee which leaves the territory possesses the necessary qualities, the exports of falsified products which once were made having ceased.

INDIA.

In the mountainous regions the principal zones of cultivation of the country are Madras, Coorg, Mysore, Travancore and Cochin. The total area under coffee plantations is 71,500 hectares, which yielded an exportable production in 1932-33 of 246,000 bags of 60 kgs. This however was an exceptional production figure; the average may be put at 175,000 bags.

The coffee problem in British India is entirely of a technical character and the authorities give their greatest attention, by means of the experimental stations they have set up, to cultivation, and to the diseases, which constitute the principal factor limiting cultivation and production.

In some British Colonies the greater cultivation of other products such as tea and cacao has gradually taken the place of coffee cultivation and it is noted that, as a consequence, from an exportation of the production of 75,000 bags a century ago, exports have now fallen to an annual average of only 5,000 bags.

The same is true too of Trinidad, which now does not export more than 4,000 bags. In Jamaica the diminution in production is very noticeable, the present average export of 50 to 70 thousand bags being but a pale reflection of the average in the period between 1800 and 1830, when the island was considered as one of the regions of greatest production with an average of 200,000 bags per annum. The replacement of coffee by new products is greatest in the island of Ceylon where the cultivation of tea has completely replaced that of coffee, exports having ceased, though a century ago an annual average of 400,000 bags was exported.

All in all, of all these territories it is in East Africa that the cultivation of and trade in coffee is most prosperous. India has too much to do in combating disease to be able definitely to exploit the product, whilst in general in other colonies, as we have seen, coffee cultivation has been replaced by the more profitable cultivation of other crops.

FRENCH POSSESSIONS.

France offers the most striking example of protection granted to colonial products. The following are the charges which bear on the product from the time it enters the country until it reaches the consumer.

Type of charge	Amount per quintal francs
Customs duties	240,40 frs.
Consumption tax	180,00 »
Import license	100,00 »
Protection of colonial coffees	10,00 »
Statistical	4,80 »
Total	535,20 frs.

to this sum it is necessary to add 8 per cent. *ad valorem.*

These taxes are imposed on coffees of non colonial origin. For those from the colonies the charges are as follows:—

Consumption tax	180 frs.
Special tax	10 »
Total	190 frs.

Thus, apart from the 8 per cent. *ad valorem* duty the colonial coffees have a preference over coffees from elsewhere of 345.20 frs. per quintal.

It may be noted that the tax on coffee alone amounted in 1934 to one tenth of the total customs revenue and that among the duties on imports that on coffee is the most important.

But since coffee pays not only customs duties but also other charges, as we have seen, it results that the total receipts obtained by the treasury from coffee amounted in 1934 to 1,095,000,000 frs. In 1935 they amounted to 977,000,000 frs.

In these circumstances colonial coffee is in a specially favoured situation. But since the French market consumes much coffee and presents opportunity for expansion, and since on the other hand colonial imports only cover, up to the present, between 10 and 12 per cent. of the needs of the mother country (the colonial coffee being almost entirely of the Robusta and Liberia varieties, which require, on account of their poor quality, to be mixed with Arabica in order to be disposed of) the possibility of replacing the product of foreign countries is still rather remote. Indeed, if during a period of five years the quantity of colonial coffees consumed in France were to increase by 100 per cent. rising from 300,000 bags to 600,000 it is evident that only a slight effort of propaganda made by the foreign countries would send up the consumption of their coffees in the same proportion as that of the colonial coffees, given the absolute necessity to use them for mixing. However little these countries may develop commercial skill, their mild coffee cannot, in view of their excellent quality, be eliminated from the market as long as the French colonies do not cultivate the finer varieties.

There is at present only one French colony which is an important coffee producer, namely, Madagascar, for though a part of the French possessions once had an important production of the article it has now been replaced by other crops, whilst in other parts of the possessions coffee has only recently been introduced. The greater part of French colonial production comes from the island, where in 1934 the number of hectares under coffee cultivation amounted to 69,500, the average production during the financial years 1932-33 and 1933-34 amounting to 278,000 bags of coffee. The exports of coffee from Madagascar during the seven years up to 1934 were as follows:—

Year	Bags of 60 kgs.
1928	67,097
1929	46,188
1930	52,270
1931	136,492
1932	202,028
1933	238,775
1934	200,203

Of all the coffee consumed in France, 7.5 per cent. comes from this colony, in its turn representing 68 per cent. of all coffee from the colonies consumed in France.

France grants on the colonial coffees an export premium, established under a decree of 31 May 1931 and which in purpose is to indemnify the producer for the difference between the low selling price of recent times and the cost of production. The funds for this subsidy come from the special tax applied on all coffees, a tax to which we have referred in enumerating the charges borne by all coffees entering France. During the whole of 1931 and the first quarter of 1932 the producers of Madagascar obtained a bounty of two francs per kilogramme. In 1933 the premium was lower and amounted only to 0.45 frs. and during the first half of 1935 it fell to 0.25 frs.

The other colonial territories of France, as we have already noted, either have given up coffee cultivation for that of cotton crops or have only just started to cultivate coffee. At present their production is very low.

In recent years French West Africa, of which the principal producing country is the Ivory Coast, followed by Guinea, Dahomey and Senegal, has developed its production only very slowly, the average exports being 7,500 bags of 60 kgs.

New Caledonia, wher production is gradually increasing sends however to the mother country only an average 10,000 bags. The exports from French Indo-China, which introduced coffee cultivation in 1895, and in 1920 exported 15,000 bags, now do not exceed 4,000 to 5,000 bags. Guadaloupe, where cultivation prospered and, a century ago, 15,000 bags of coffee were produced, a quantity which was maintained, with fluctuations, until 1924-27, has seen its exports fall until at present they only amount to 3,000 to 4,000 bags per annum. In this case the principal reason for the diminution was the cyclone of 1928 which destroyed almost all the plantations. Then comes Martinique, famous in the history of coffee, for from there the production of coffee spread towards the Americas and the Antilles. Production in Martinique reached 100,000 bags of coffee per annum at the time of the French revolution, but at present it only amounts to from 300 to 400 bags. The New Hebrides, where coffee has been cultivated only since the beginning of the twentieth century, export about 4,000 bags. Owing to the small importance of their production and exports, we shall only list the other colonial possessions where the plant is cultivated, namely: the island of Reunion, the French Indian Establishments, of which Pondichery was a large production centre, French Guiana, Togo, and the colonies of French Equatorial Africa.

One French colonial centre, Jibouti, has according to the statistics, an important export of coffee for the figure of exports having increased since 1913, has reached in recent years an average of 225,000 bags of 60 kgs. But in this case it is not only a question of the coffee of French Somaliland, but of large quantities of Abyssinian coffee, for which this port is the necessary exit.

PORTUGUESE POSSESSIONS.

Angola is the only Portuguese colony which produces coffee, but it takes a moderate place among the coffee producers. Exports had already reached

75,000 bags in 1913 and have grown continually since 1920, reaching in the last three harvest years up to 1934 figures fluctuating between 150,000 and 175,000 bags.

BELGIAN CONGO.

Whilst visiting, in 1930, the 110 plantations of this colony, M. **KERMANS** deplored that the central government did not pay as much attention to the coffee plantations as it did to the cultivation of cotton. This, we repeat, was very recently, in 1930, when not much time had passed since the first significant exports (3,000 bags in 1926) had been made, and when exports equalled 35,000 bags. But Belgian Congo has surprised all the technicians by the considerable progress which it has made in hardly four years. Since 1930 exports have taken the following course:

Year	Exports bags of 60 kgs.
1931	48,630
1932	89,776
1933	138,334
1934	201,667

A great part of this success is due to the Association of Coffee Cultivators of the Belgian Congo which directs everything relating to the cultivation, the industrial transformation and the trade of coffee. The European plantations cultivate for preference the Arabica variety as the most valuable but generally the Robusta variety predominates because it is better adapted to the conditions of the colony and has shown a greater resistance to the diseases and other plant enemies, yielding an abundant production.

Since the needs of the home country are so limited and since, if it is wished to attain a large production, it would be necessary to compete in world markets to dispose of the product, the Association studies other possibilities, seeking to regulate production, which is difficult owing to the great diffusion of the small plantations of the independent native farmers.

OTHER COUNTRIES.

Among other producing countries we may note in South and Central America Peru, Bolivia and Honduras. The first country, which in 1933-34 imported more coffee than it exported, increased its production in the following years, with the result that imports have at present fallen to one tenth of the exports, which in recent years have reached a level of 15,000 bags. The commerce of Bolivia is almost insignificant, but from Honduras, where recently has been established the Institute for the Defence of Coffee, exports averaged 30,000 bags, a figure which might be increased, for the latter body has the intention of encouraging production by assisting the cultivators in the growing and preparation of the product.

The island of Cuba had a period of prosperity around 1850 when it exported approximately 400,000 bags of coffee, but production has since decreased, being replaced by the cultivation of sugar cane. In 1914 exports had already ceased. The country is a large coffee consumer, and, no longer producing sufficient for itself, imports a considerable quantity which is estimated at an average 200,000 bags per annum. The sugar crisis is now tending to increase the cultivation of coffee and in 1932-33 15,000 bags were exported.

The Philippine Islands reached a maximum export figure of 125,000 bags in 1883. After 1890 the plantations were devastated by insects and at present the country does not export at all and indeed is obliged to have recourse to importation, for the little which it produces is far from sufficient to cover the needs of its consumption.

We may mention finally Hawaii the exports of which on the average fluctuate around 35,000 to 40,000 bgs; the Republic of Liberia, which exports 20,000 bags and which has in its coffee exports one of the main source of its wealth; and one of the West Indian Islands, which by reason of the long period of its cultivation of coffee and by the high quality of the product has always enjoyed a good reputation, namely, Puerto Rico. Well drained soils, the altitude, climate and abundant precipitations are the factors which make of the region one of the best in the world for coffee cultivation. Cultivation began in 1750. A quarter of a century later an export of 100,000 bags was obtained, and exports increased until the end of the last century, when production reached the figure of half a million sacks, which were almost all exported owing to the great demand for the product on all markets. But later the abnormal situation, created by the Spanish American war and by natural adversity, such as a cyclone in 1899 which destroyed a great part of the plantations and another in 1928 which completed the destruction, sent down the exports of Puerto Rican coffee to negligeable quantities, only 3,000 sacks being exported in 1930. Though there has been a renewal of production since that date production has not again exceeded the figure of 15,000 sacks exported in 1931.

CONCLUSIONS.

From the outline which we have just given we may draw the following conclusions:

(1) The enormous increase in the area under the cultivation of coffee in the world was certainly caused by the high prices fetched by the product up to 1929, owing to the valorisation artificially maintained by Brazil.

(2) If the figures of world production and consumption are compared, it is observed that there exists a surplus of production which causes congestion and disequilibrium on the market and which originates almost entirely in Brazil.

(3) The policy of holding stocks, followed firstly by Brazil, resulted in an artificial valorisation of coffee, which, in its turn encouraged the cultivation of coffee and the break down of the valorisation scheme.

(4) The new policy of destruction of the surpluses of production brought equilibrium on the market, bringing, for the time being, reasonable prices, which allowed coffee cultivation to be established on a remunerative basis.

(5) The policy of elimination of surplus stocks followed by Brazil and later by other countries cannot continue indefinitely. The means, therefore, must be considered which could establish the cultivation of coffee on more economic foundations. The solution probably lies in concentrating production on the better qualities.

If world consumption continues to grow, it would be better, since there is already over production in the world, to adjust production to consumption by selecting soils and varieties, by eliminating uneconomic plantations and by ceasing to produce the poorer qualities of coffee, thereby making it possible to obtain a fine product, which is still the one that meets the fewest obstacles on the market,rather than to extend cultivation still further to meet the probable increase in consumption, as this would only prolong indefinitely the existence of the surplus stocks.

E. MARTINEZ DE BUJANDA.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

OEKONOMISCHE GESELLSCHAFT IN SACHSEN. Mitteilungen der Oekonomischen Gesellschaft in Sachsen 1935. Jahresbericht und Bericht über die Braugerstenausstellung 1935. Dresden, Im Selbstverlage der Oekonomischen Gesellschaft, [1936]. 14 p.

Economics History.

HUNT, R. L. A history of farmer movements in the Southwest, 1873-1925. [1935 ?]. VI, 7-192 p.

Sociology.

BRUGGER, P. Der Anerbe und das Schicksal seiner Geschwister in mehreren Öberämtern der Wurtt. Oberlandes. Berlin, P. Parey, 1936. 72 p. (Berichte über Landwirtschaft, 121. Sonderheft).

PASTOR, E. Deutsche Volksweisheit in Wetterregeln und Bauernsprüchen. Berlin, Deutsche Landbuchhandlung, [1934]. 454 p.

PEARSON, S. V. The growth and distribution of population. New York, J. Wiley & sons, 1935. 448 p.

Economics.

BORDIN, A. Lezioni di economia politica. Padova, C. E. D. A. M., 1934. (R. Istituto superiore di scienze economiche e commerciali, Venezia).
Vol. I. La statica. Parte 1ª. Introduzione. Lo scambio. Anno accademico 1933-34. 1934 483 p.

[GREAT BRITAIN]. COLONIAL OFFICE. An economic survey of the Colonial Empire (1933). London, H. M. Stationery office, 1935. VI, 573 p. (Colonial nº 109).

KEYNES, J. M. The general theory of employment interest and money. London, Mac-Millan, 1936. XII, 403 p.

NICOLAI, A. Les remises des emigrants italiens. Nice, Société générale d'imprimerie, 1935. 224 p.

Panunzio, S. L'economia mista. Dal sindacalismo giuridico al sindacalismo economico. Milano, U. Hoepli, 1936. 246 p. (Studi giuridici, politici, economici e sociali).

Pigou, A. C. The economics of stationary states. London, MacMillan, 1935. XI, 326 p.

Reithinger, A. Wirtschaftsbeobachtung und Wirtschaftsordnung. Leipzig, F. Meiner, 1936. VII, 183 p.

Schneider, E. Theorie der Produktion. Wien, J. Springer, 1934. IV, 92 p.

Soltau, R. H. An outline of European economic development. London, Longmans, Green & C., [1935]. XIV, 307 p.

Von Wolzogen und Neuhaus, H. J. Die Theorie der internationale Wirtschaft und ihre Gestaltung in der Aussenpolitik der U. S. A. Leipzig, R. Noske, 1936. 136 p. (Hessische Beiträge zur Staats- und Wirtschaftskunde, hrsg. von Friedrich Lenz, Bd. 16).

Legislation.

Annuaire de législation étrangère publié par la Société de législation comparée, contenant le texte des principales lois votées dans les Pays étrangers en 1932. 2e Serie. Trentième Année (Soixantième Année de la collection). Paris, Libr. générale de droit et de jurisprudence, 1933. 483 p.

Bortolotto, G. Protezione degli operai. (Legislazione del lavoro). Milano, U. Heopli 1936. XI, 319 p. (Manuali Hoepli).

Frese, L. und W. Adermann. Führer durch das Reichsnährstandrecht. Eine Zusammenstellung des geltenden Agrarrechts und der verwandten Rechtsgebiete des Reiches, der Länder, des Reichsnährstandes und der von ihm umfassten Zusammenschlüsse. Berlin, Reichsnährstand Verlags-Ges. m. b. H., 1935. 102 p.

London School of Economics and Political Science (University of London). Department of Law. Annual Survey of English Law. 1935. London, Sweet & Maxwell, 1936, XXXIII, 355 p.

Wöhrmann, O. Praktischer Wegweiser durch das Erbhofrecht für Erbhofbauern an Hand zahlreicher praktischer Beispiele. Berlin, P. Parey, 1935. 63 p.

Statistics.

Anderson, O. N. Einführung in die mathematische Statistik. Wien, J. Springer, 1935. V, 314 p.

Société de statistique de Paris. Annuaire de 1935, 1936. [Paris, Impr. Berger-Levrault], 1936, 2 vols.

Rural Economics.

Agricultural organization in New Zealand. A survey of land utilization, farm organization, finance and marketing. Melbourne, Published for the New Zealand institute of Pacific relations by the Melbourne university press, 1936. XX, 818 p. (Institute of Pacific relations, Honolulu. International research series).

Amaral, L. Aspectos fundamentaes da vida rural brasileira. (Ensaio sobre a rotina). [S. Paulo, « Revista dos tribunaes »], 1936. 296 p.

Bayerischer Landesverband landwirtschaftlicher Genossenschaften Raiffeisen, e. V. in München, und seine Tätigkeit im Jahre 1934. München, [Rischmöller u. Meyn], 1935. 20 p.

Commission international d'agriculture, Paris. Annales. Mai 1936. 15. Paris, 1036. 192 p.

HALL, A. D. The improvement of native agriculture in relation to population and public health. London, Oxford university press, 1936. VI, 104 p. [University of London. Health clark lectures, 1933, delivered at the London school of hygiene and tropical medicine].

JOHNSON, C. S. E. R. EMBREE, W. W. ALEXANDER. The collapse of cotton tenancy. Summary of field studies and statistical surveys, 1933-35. Chapel Hill, University of Carolina press, 1935. IX, 81 p.

LONGOBARDI, C. Land-reclamation in Italy. Rural revival in the building of a nation. Translated from the Italian by Olivia Rossetti Agresti. London, P. S. King, 1936. XII, 243 p.

ÖSTERREICHISCHE LAND- UND FORSTWIRTSCHAFTSGESELLSCHAFT IN WIEN. Agrar-Politik und Agrar-Wirtschaft. Jahrbuch 1933-34. Wien, [R. Spies], 1935. 528 p.

ORWIN, C. S. [and] H. W. Kersey. Estate accounts, 2nd ed. Cambridge, University press, 1936. 44 p.

PALLADINO, G. I maggiori problemi delle corporazioni a ciclo produttivo. Saggi di economia programmatica corporativa. Roma, [« Enios »], 1935. XIX, 531 p.

[UNITED STATES]. AGRICULTURAL ADJUSTMENT ADMINISTRATION. Annotated compilation of Agricultural adjustment act as amended and acts relating thereto, at the close of first Session of the 74th Congress, August 26, 1935. Washington, Govt. printing office, 1935. V, 187 p.

YSTGAARD, H. Bondenaering og statstiltak. Statens tiltak til støtte og fremme av vårt landbruk. Oslo, Tiden norsk forlag, 1935. 107 p. [The measures adopted by the state for the development of agriculture].

Insurance.

CAISSES CENTRALES D'ASSURANCES MUTUELLES AGRICOLES. L'activité mutualiste au cours de l'exercice 1931-34. Comptes rendus des assemblées générales ordinaires. Paris, [M. Pigelet], 1932-35 4 vols.

Commerce.

GROSSERER-SOCIETETETS-KOMITE. Handelsberetning for aaret 1935. København, [J. Jørgensen & Co.], 1936. 447 p. [Trade Report].

MAINZ, K. Der polnische Aussenhandel. Berlin, Volk und Reich Verlag, 1935. 202 p. (Schriften des Instituts für osteuropäische Wirtschaft am Staatswissenschaftlichen Institut der Universität Königsberg).

Various.

BERGSMARK, D. R. Economic geography of Asia. New York, Prentice-Hall, 1935. XXIV, 618 p.

PADOANI L. Carta economica dell'Africa Orientale. Flora, fauna, giacimenti minerali, vie di comunicazione. Milano, « Il mondo geografico », 1936.

RÉPERTOIRE GÉNÉRAL DE BELGIQUE. La Belgique alphabethique par spécialités et par noms. 12ème année. 1936. [Gand, 1936] 588-556 p.

ORSOLINI CENCELLI, V. Le Paludi Pontine nella preistoria, nel mito, nella leggenda, nella storia, nella letteratura, nell'arte e nella scienza. [Roma], Opera nazionale per i combattenti, [1934]. 385 p.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

PRODUCTION AND CONSUMPTION OF AND EXTERNAL TRADE IN MEAT IN FRANCE

SUMMARY — Live stock numbers and production of meat, fluctuations before and after the war — Variation in meat consumption.

Before the war, France had a relatively well balanced stock breeding industry, directed in part towards the production of meat, in part towards that of milk and in part towards the raising of work animals, the ox holding an important place as draught animal in French agriculture. A certain importance attached to sheep farming in addition to cattle and pig breeding. There was a fairly considerable consumption of meat, in correspondence with the production, both in respect of the total quantity consumed, as well as of the proportion of the various kinds of meat. France exported cattle and beef, and imported sheep and pigs to a somewhat limited extent, and the trade, although not exactly balanced, showed a hardly appreciable deficit. There were signs of some further development, undoubtedly, in the live stock industry, but progress was gradual and without sudden changes of any kind.

Not only was this development of the industry hastened by the war of 1914-18 and by the years that followed, but numerous fluctuations of wide range began in consequence to make their appearance. The French meat market, the production of meat, its consumption and the home trade became extremely liable to disturbance arising out of complex factors which were acting on the general economic position. The disturbances that actually occurred and the consequent general want of equilibrium resulted in a serious crisis in the French production of meat.

This crisis has made clear the necessity for measures of improvement and reorganisation in meat production and the meat market in France.

I. — Live stock numbers and production of meat; fluctuations before and after the war.

GENERAL DEVELOPMENT DURING THE PRE-WAR PERIOD.

The pre-war period was on the whole marked by an increase in live stock numbers in France. Taking into account the very appreciable increase in the live weight of the animals and of the yield in meat, as well as the progress in breeding, it may be roughly calculated that the live stock increase on the eve of the war was one of from 10 to 20 per cent. as compared with 1850-52, while in the same time the human population had increased by 4 per cent. only.

This period was characterised also by a very marked decline in sheep numbers and by an equally marked increase in cattle and pig numbers, to keep exclusively to the kinds of stock more especially used for meat production.

It will be seen later that the supply of horseflesh is also of a certain importance for meat consumption, especially on the Paris market, but this utilisation for slaughter purposes is quite a subsidiary aspect of horse breeding, and in no way influences the course taken by that branch of breeding and its numerical variations.

The general development noted in the numbers of the different kinds of live stock, and more particularly the decrease in the sheep numbers, are due to a familiar transformation of the economic and social conditions of agriculture.

Apart from the variations, already referred to, in the live weight and in the yield in meat, which have together a very decided influence on the actual supply of meat to the market, it should be noted that the census returns of numbers do not always convey an exact idea of the relative importance of the live stock numbers.

The census is, in fact, taken in the course of December. Now, with the progress made in breeding methods and with the development of the consumption it has been found that, especially for sheep and pigs but also for cattle, the slaughtering age has been lowered in the course of the period under review; in particular many of the spring lambs have been killed at eight or nine months, that is to say, before the date of the census taking, whereas formerly these were kept till the following year and accordingly appeared in the census returns

In addition, the lowering of the slaughtering age involves a much larger replenishment of stock, and hence an increase in the average productivity of herd or flock.

Speaking generally, it may be said that the decline in sheep numbers was much less considerable, from the standpoint of meat production, than would appear from a comparison of the numbers existing at the end of the years 1852, 1882 and 1912, and that the increase in cattle and pig numbers was of considerable importance. In placing the total increase of French live stock available for meat purposes at from 10 to 20 per cent , an understatement is probably made

RECONSTITUTION OF LIVE STOCK AND DIRECTION GIVEN TO BREEDING IN THE POST-WAR YEARS

In the course of the war, very considerable losses were experienced in French live stock, in particular in respect of sheep and pigs, where the large proportion of the stock consists of young animals for slaughtering; in the first or second year of the war the losses registered were to be attributed, especially, to the fact that consumption of meat had intensified and outstripped the capacity of the live stock production It is undoubtedly true, however, that the change in economic and social conditions which had taken place gradually before the war was accelerated, speeded up, so to speak, and thus hastened the decline in sheep farming.

TABLE I. — *Variations in Numbers of the Several Kinds of Live Stock in France between 1852 and 1935.*

	Year 1935 (*) (2)	Recent period (1)			Reconstitution period (1)		
		1934	1933	1929	1928	1926	1920
	(Thousands of head)						
Cattle	15,670	15,704	15,829	15,631	15,005	14,882	13,217
Sheep	9,558	9,571	9,730	10,452	10,445	10,775	9,406
Pigs	7,043	7,044	6,769	6,102	6,017	5,777	4,942
Pro memoria							
Horses (4)	3,144	3,183	3,232	3,363	3,352	3,342	3,114
Goats	1,316	1,405	1,448	1,885	1,372	1,388	1,341

	War period		Pre-war period (2)			
	1919	1913	1912	1902	1882	1852
	(Thousands of head)					
Cattle	12,374	14,788	14,706	14,929	12,997	11,971
Sheep	9,061	16,131	16,488	20,576	23,809	33,282
Pigs	4,081	7,036	7,172	(3) 7,561	7,147	5,246
Pro memoria						
Horses (4)	2,883	3,776	3,777	3,599	3,484	3,662
Goats	1,175	1,435	1,409	1,532	1,851	1,338

N. B — The live stock census takes place every year in December.

(*) Provisional figures. - (1) Includes head of stock in the departments of Haut-Rhin, Bas-Rhin and Moselle. — (2) Not including the number of stock since 1871 of these same departments which counted in 1912, 523 thousand cattle, 46 thousand sheep, 431 thousand pigs, 119 thousand horses and 72 thousand goats. - (3) Year 1903, which marked the maximum number of pigs (about 8 million head counting the three above-mentioned departments). — (4) Horses, mules and asses.

The years which followed immediately on the war were marked by a reconstitution of live stock, relatively limited in scope, however, and with little effect in regard to sheep the numbers of which once more began to decrease from 1927.

With this reserve and that which should also be made in respect of horses and goats, it may be estimated that the French live stock was practically reconstituted by 1928-29.

Index numbers of the live stock returns at the end of 1928 are established as follows in relation to those of 1920 and 1912. For these latter, account has been taken, on the one hand (*a*) of the numbers only returned as in the boundaries of French territory before the war, and, on the other hand (*b*) of the numbers included within the present boundaries, after the re-annexation of the three Alsace-Lorraine departments:

	1920 = 100	1912 = 100 (a)	(b)
Cattle	114.3	102.0	98.5
Sheep	111.0	63.4	63.2
Pigs	121.3	83.8	79.1
Weighted average	*115*	*98*	*94*

The weighted average is given simply by way of illustration; it is obtained by means of an approximate calculation only, and cannot therefore have any other significance.

The increase in the index numbers is the more remarkable as it coincides with an increase in slaughterings and a decided decline in imports, a decline amounting to more than 1,800,000 quintals between 1927 and 1928.

The index numbers themselves, which express the comparison between the numbers of live stock in existence at the end of the years under review, give an incomplete picture only of the actual reconstitution of the live stock in France. The observations already made on this subject in respect of the development of the live stock in the period previous to the war may be recalled here, especially for cattle.

It may be observed, in the first place, that the net average weight of the animals brought to the Villette market in Paris was during these years noticeably less than the pre-war average, and that for cattle it continued to decrease since the war, while for pigs there was a slight increase, as shown by the following figures:

	1927	1923	1922	1913	1911
		kg of net meat on average per head			
Bullocks	325	328	331	409	384
Calves	67	70	72	96	93
Sheep	18	19	18	20	21
Pigs	77	74	74	120	115

An especially large decrease in net weight in comparison with the pre-war figure, one of from 35 to 38 per cent., is to be noted in the case of *pigs*.

This fact points to a somewhat radical transformation of pig breeding which was now directed towards the production of lean meat, and this in turn tended to lower very markedly the slaughtering age of the animals. From 1920 to 1927, however, the weight slightly increased (by about 4 per cent.). It is noted that the proportion of young pigs of less than six months among the total numbers returned at the end of the year has increased as compared with the pre-war proportion, but declined slowly between 1920 and 1926, the percentages being 46.9 in 1913, 49.2 in 1920, 48.9 in 1926 and in 1928. It should further be noted that a large number of these are killed before the census date and hence escape return to an extent decidedly greater than before the war.

The decrease shown on Table II in the pig numbers existing at the end of the year 1928 as compared with the period 1912-13 seems thus not to correspond to an actual decline in the numbers of this branch of live stock farming, still less to a decrease in the supply of pigmeat, in spite of the smaller number of sows (790,000 in 1928, as compared with 907,000 in 1913, or 78.1 per cent. of the earlier figure). From the very fact of the lowering of the slaughtering age, the production has been intensified, has gone on at a more rapid pace, resulting in a more frequent renewal of the full grown stock.

TABLE II. — *Variations in Numbers of Full-grown and Young Pigs.*

Classes	1935 (a)	1934	1933	1932	1931	1930
	Thousands of head					
Boars	40	39	39	39	37	34
Sows	877	884	870	870	814	822
Animals for fattening of 6 months and over	2,604	2,565	2,483	2,384	2,366	2,332
Animals for fattening under 6 months	3,522	3,556	3,377	3,235	3,181	3,141
Total number	*7,043*	*7,044*	*6,769*	*6,488*	*6,398*	*6,329*

Classes	1929	1928	1927	1926	1925	1913 (b)
	Thousands of head					
Boars	34	33	34	33	29	39
Sows	771	790	785	776	709	907
Animals for fattening of 6 months and over	2,265	2,250	2,275	2,143	1,772	2,801
Animals for fattening under 6 months	3,032	2,944	2,926	2,825	2,432	3,290
Total number	*6,102*	*6,017*	*6,019*	*5,777*	*4,942*	*7,036*

(*a*) Interim figures — (*b*) Does not include the departments of Moselle, Haut-Rhin and Bas-Rhin.

Sheep farming seems to have also undergone a similar series of changes. As well as the slight decrease in the average net weight of animals slaughtered, a decrease ranging from 9 to 14 per cent., which indicates a general lowering of the slaughtering age, much less appreciable however than that observed during the years preceding the war, a quite abnormal decrease may be noted in the number of both male and ewe lambs returned at the end of the year; this is almost a 48 per cent. decrease and the proportion in relation to the total animals dropped from 16.1 per cent. in 1913 to 12.3 per cent. in 1928. More clearly still may be noted the relatively very small number of male and ewe lambs of under one year in comparison with the number of ewes; the same may be noted also for wethers of one year old and over, but the latter decrease has not the same significance.

	1926	1920	1913
Number of male and ewe lambs of under one year per 100 ewes	39	39	59
Number of wethers of one year old and over per 100 ewes	20	19	28

It may accordingly be stated that the proportion of lambs of the year, slaughtered before the census return of December, greatly increased (by more than 50 per cent.) as compared with the pre-war years. It may also be observed on Table III that the number of wethers one year old and over and remaining at the end of the year is relatively high in comparison with that of the lambs, male and ewe, returned at the end of the preceding year, the percentages being 71.6 in 1926 as against 64.5 in 1913; from this it may be concluded that the number killed is less than it was before the war. The extent of the decrease is however much less than that of the increase in the killings of the lambs of the years. If it be added that the number of ewes shows a relatively small decrease (20 per cent. only as compared with the figure in 1913), it will be found necessary to correct the impression that is gained from the comparison of the total stock existing at the time of the census taking each year, and to consider, not only that the sheep total has in fact decreased merely by one fifth instead of one third as would seem to be the case, but that the decrease in the production of meat, as from the fold, is still less and is below one fifth, approximately 10 to 15 per cent.

TABLE III. — *Variations in Head of Full-grown and Young Sheep.*

Classes	1935 (1)	1934	1933	1932	1931	1930	1929
	Thousands of head						
Rams	191	192	200	207	212	213	244
Ewes of 1 year and over	5,976	5,929	5,981	5,980	6,009	6,163	6,087
Wethers of 1 year and over	998	1,046	1,071	1,137	1,211	1,302	1,545
Total	*7,165*	*7,167*	*7,252*	*7,324*	*7,432*	*7,678*	*7,876*
Wethers and ewe lambs under 1 year	2,393	2,404	2,477	2,438	2,413	2,474	2,575
Total number	*9,558*	*9,571*	*9,730*	*9,762*	*9,845*	*10,152*	*10,452*

Classes	1928	1927	1926	1920	1913 (2)	1903
	Thousands of head					
Rams	209	214	213	203	294	279
Ewes of 1 year and over	6,503	6,610	6,635	5,818	9,288	9,878
Wethers of 1 year and over	1,271	1,329	1,327	1,085	2,581	3,337
Total	*7,983*	*8,153*	*8,175*	*7,106*	*12,163*	*13,494*
Wethers and ewe lambs under 1 year.	2,461	2,542	2,599	2,301	3,968	4,460
Total number	*10,445*	*10,693*	*10,775*	*9,406*	*16,131*	*17,954*

(1) Interim figures. — (2) The departments of Haut-Rhin, Bas-Rhin and Moselle are not included.

Observations of the same kind might be made in respect of *cattle,* so far as to say that the average net weight of animals placed on the market is less by one fifth for oxen and by one third for calves in comparison with 1913; the slaughtering age has thus been lowered perceptibly.

The effect of this lowering of age becomes cancelled in the determination of live stock numbers because the total volume of slaughterings of national live stock was somewhat reduced in the post-war years; and here we have the main explanation of the fact that, while the number of cows remained up to 1926 distinctly lower than the number in 1913, from 1924 onwards the number of calves and heifers registered at the end of the years was equal to that registered at the end of 1913, and that the young stock of one year old and over had nearly recovered from 1920 onwards their pre-war totals.

TABLE IV. — *Variations in Numbers of Full-grown and Young Cattle.*

Categories	1935 (1)	1934	1933	1932	1931	1930	1929
	Absolute numbers (thousands of head)						
Bulls	264	259	261	261	255	246	213
Bullocks	1,297	1,346	1,362	1,373	1,389	1,362	1,318
Cows	8,662	8,653	8,572	8,451	8,274	8,288	8,196
Total	*10,223*	*10,258*	*10,195*	*10,085*	*9,918*	*9,896*	*9,727*
Young animals of 1 year and over	3,158	3,139	3,192	3,096	3,094	3,049	3,033
Young animals under 1 year	2,288	2,307	2,443	2,461	2,421	2,522	2,871
Total number	*15,670*	*15,704*	*15,830*	*15,643*	*15,434*	*15,467*	*15,631*

Classes	1928	1927	1926	1920	1913 (2)	1902	1852
	Absolute numbers (thousands of head)						
Bulls	278	266	256	246	284	293	289
Bullocks	1,441	1,444	1,426	1,338	1,843	1,747	1,861
Cows	8,118	7,971	7,701	6,830	7,794	8,318	5,781
Total	*9,837*	*9,681*	*9,383*	*8,414*	*9,921*	*10,358*	*7,931*
Young animals of 1 year and over	3,116	3,137	3,025	2,830	2,854	2,786	2,162
Young animals under 1 year.	2,052	2,112	2,064	1,973	2,012	1,784	1,817
Total number	*15,005*	*14,941*	*14,482*	*13,217*	*14,788*	*14,929*	*11,971*

(1) Interim figures. — (2) Does not include the departments of Haut-Rhin, Bas-Rhin and Moselle.

A certain disproportion may however be observed, in comparison with 1913, between the totals of these two classes of young animals, a disproportion which is a very clear index of the direction given to meat production as marked by the lowering of the slaughtering age. Whereas in 1913 for every 100 calves under one year there were 142 young animals one year old and over, in 1928 the proportion became 152 to 100; it may be further noted that there had been a 9.2 per cent. increase for the young animals of one year old and more, while for animals of less than one year the increase was 2 per cent. only, and that, as compared with the total stock, the proportion rose, in the case of the former class of animals, from 19.3 in 1913 to 20.8 per cent. in 1928, while for the latter class, that of calves, it remained the same as before, 13.6 per cent.

The general course of development in the case of cattle as shown on Table IV moreover presents a much more characteristic feature: the relatively large increase in the number of cows existing at the end of the year and the parallel decrease which is very noticeable in the number of bullocks. This appears clearly from the proportional index figures of the totals of 1928 as compared with those of 1920 and 1913.

This fact may also be expressed in the following way: whereas in 1913 for every 1,000 cows there were 236 bullocks, in 1928 there were only 178 bullocks. This represents a higher proportion of the number of cows in the total head of cattle, a proportion which rose from 52.7 per cent. in 1913 and 51.7 per cent. in 1920, to 54.1 per cent. in 1928, the proportion for bullocks being 12.5 per cent. in 1913, 10.1 in 1920, and in 1928 only 9.6.

	1920 = 100	1913 = 100	
		(a)	(b)
Proportional index numbers for cows	118.9	104.2	100.3
Proportional index numbers for bullocks	107.7	78.2	77.2

(*a*) Not including in 1913 the three Alsace-Lorraine departments. — (*b*) Including in 1913 these three departments.

This striking fact is related to the general changes which came about in agricultural economy in the post-war years.

The conclusions that might be drawn from the relative increase in the cow numbers would be more exact if the number of dairy or milch cows could be determined, but a return in this respect was made only in 1925 and 1926 and no comparison is possible with the pre-war years.

	1926	1925
Number of milch cows (thousands)	7,058	7,031
Proportion in relation to the total number of cows (%) . . .	91.7	92.6

The comparison of the two index figures would seem to indicate a diminution in the average productivity per cow, but as based on two years only this conclusion has not sufficient warrant to be regarded as exact for the period considered, the more so that the year 1926 was, as compared with the preceding year, one of less forage production. Speaking generally, it seems however certain that the relative falling off in slaughterings of cows for meat and the tendency to kill younger animals must have the effect of raising the average age of the cows, of reducing the proportion of milch or breeding cows and their fecundity, and consequently of reducing the average productivity of the herd, thus gradually counterbalancing the contrary effect noted above and still clearly dominant in 1928.

The following general conclusions may serve to summarise the observations already made on the development of live stock numbers in the years which followed the war, and on the situation in this respect in 1927-28.

In 1928, the meat production, reckoned in terms of the animals actually bred, had become *at least* equal to what it was immediately before the war, with a larger proportion of cattle and pigs, a less proportion of sheep; the quantity however placed on the market was smaller, in consequence of the noticeable lowering of the slaughtering age.

The average productivity of the breeding females would seem to have increased in the case of sheep and pigs, so that the tendency to the reduction in stock numbers was balanced in the first case, and the tendency to increase accentuated in the second case, from the standpoint of meat production. With cattle, the lowering of the slaughtering age, the tendency to slaughter relatively young animals for meat, and among fully grown stock rather bullocks than cows, had the direct and immediate effect of increasing the proportion of cows and, to a certain extent, also the productivity of breeding cows; these same factors, however, carried further, must inevitably have an effect the inverse of the former, from the fact of the non-renewal of the stocks of fully grown cows. Although not very noticeable in 1928, this latter effect would seem inevitably to assume certain proportions in the following years.

RECENT PERIOD, FROM 1929 TO 1934.

The general course already noted of the post-war reconstitution period was continued up to 1933-34. The cattle numbers reached their maximum in 1933; sheep numbers declined and pig numbers rose, both almost continuously. In 1933 for cattle, in 1934 for the other kinds, the proportional index figures were as follows in comparison with the corresponding figures of 1928 and 1920.

	1928 = 100	1920 = 100
Proportional index figures of cattle numbers in 1933 . . .	105.4	119.8
Proportional index figures of sheep numbers in 1934 . . .	91.6	105.9
Proportional index figures of pig numbers in 1934	115.4	142.1
Weighted average, in 1934 . . .	*107*	*122*

The returns of the Villette market show no variation in the average net weight of animals sold since 1927. The examination to be made later of the variations of the stock numbers will show however that very probably there has been a lowering of the slaughtering age for cattle, and a rise in that for sheep and pigs, and that these variations have had an appreciable effect on the numbers returned at the end of each year. At the same time these variations seem to be only slight, and this would explain the fact that the average net weight remains constant in the Villette statistics. The variations, in so far as they exist, go to show that the actual increase of cattle numbers is a little greater, that of pig numbers somewhat less, and the decrease in sheep numbers somewhat more considerable than the differences in these respects shown by the index figures given above.

There is however a factor which has affected the range of the live stock numbers much more appreciably, *viz.*, the variations in international consumption and in imports from foreign countries involving differences at times very considerable in the volume of the meat supplies drawn yearly from the national live stock.

The fact may be especially clearly seen in the case of cattle, where the increases in the numbers (1932-33) followed directly on a period of lower home consumption of meat and a larger volume of net imports (1930-31), and where inversely the decreases (1930-31 and 1934-33) appeared after years of revival of consumption and of contraction of the net imports (1928-29 and 1932-33). The influence of these factors is so dominant that in the end there is a complete masking of the progress in the production of meat, reckoned in terms of the animals actually bred.

The effect of these factors is much less decisive as regards sheep and pig numbers, the general development of which may be seen through certain fluctuations in detail. The effect although less manifest can, however, be discerned. *Pig numbers* showed relatively little increase in 1931 and 1932, following on the remarkable development of pigmeat consumption in the previous years; the decrease in sheep numbers was somewhat slight in 1932 and 1933 following on the decline in consumption and the increase in net imports observed in 1931.

The increase in the production of pigmeat is especially seen from the trend of the stock numbers.

	1928 = 100
Proportional index figures for sows in 1934	110.6
Proportional index figures for the number of fattened pigs six months old and over in 1934	114.0
Proportional index figures for number of fattened pigs under six months old in 1934	120.8

The most striking fact is the large increase in the number of young pigs under six months old; the proportion of the numbers in this category has increased in the following way since 1928:

	1394	1928	1920
		Percentages	
Proportional index figures for the number of sows in relation to total pig stocks	12.5	13.1	12.5
Proportional index figures for the number of fattened pigs six months old and over	36.4	37.4	35.9
Proportional index figures for the number of animals for fattening under six months old . . .	50.5	49.8	49.2
Total pig stocks . . .	*100.0*	*100.0*	*100.0*

In 1928 there were for every 100 sows 285 pigs for fattening six months old and over and 373 young pigs under six months; in 1934 the proportion had risen to 290 only for the first category, and to 402 for the second. In other words while in 1928 there were per 1,000 young pigs 764 for fattening six months old and over this proportion had fallen in 1934 to 721.

The conclusion reached is clearly, on the one hand, that the slaughtering age has slightly risen, which would be enough to bring about a return of a larger number of young pigs ; and on the other hand, that the meat production, in the sties, has been less rapid than the increase in consumption, so that the proportion of animals killed has been on the decrease. The slight increase in the average net weight at slaughtering has, besides, had the effect of diminishing the number of animals killed for the same quantity of slaughterhouse products.

Thus, although the production of meat, so to speak, at the source has increased only by 10 per cent., there has resulted a crisis in the actual over-production of pigmeat for pork and other pig products.

The development of *sheep numbers* seems to be the inverse of that of pig numbers if its general decline be considered, but an analogy is to be seen in the tendency to slaughter equally older stock. The proportional index figures of the 1934 numbers in relation to those of 1926, the year which marks the close of the period of stock reconstitution, are in this respect very significant:

Ewes	89 7
Wethers of one year old and over	78 7
Lambs (male and female) under one year	94 2

The number of wethers one year old and over per 1,000 ewes was 176 in 1934 as compared with 200 in 1926, whilst that of lambs under one year old per 1,000 ewes was 405 in 1934 as compared with 392 in 1926.

While at the end of 1926 there were 716 sheep one year old per 1,000 lambs (male and female) remaining at the end of the previous year, this proportion had fallen to 422 per 1,000 in 1934 and is much smaller even than that registered in 1920, *viz* , 645 per 1,000.

The average slaughtering age has thus again probably risen; although only by a little. There can here be no question of over-production, but the phenomenon observed has effects similar to those observed above for pigs. The decrease in the production of meat, in terms of animals produced in the fold, is perhaps somewhat more marked than would seem to result from the diminished number of ewes, but the actual production of meat for slaughter has certainly not diminished in the same proportion.

The increase in the proportion of the number of ewes relatively to the number of wethers, and the relatively large proportion of young animals are alike indications of a tendency in sheep farming, which may at any time be reversed, but which, as at present appears, has the effect of checking, from the standpoint of meat production, the decline in sheep numbers.

As already remarked, it is almost impossible to supply precise statistics on the development of *cattle numbers* and the production of beef, owing to the predominating influence on the stocks of the home consumption and of imports.

The proportional index figures for the 1934 stocks as compared with those of the previous years are proof of fluctuations to an extent at times considerable which are explicable only by the relatively large differences in the net supplies (slaughterings *plus* net imports) for consumption:

	1931 = 100	1929 = 100	1928 = 100
Bullocks	97.6	102.6	93.4
Cows	104 6	105 6	106.6
Young animals one year old and over	101 5	103.5	100 1
Young animals under one year	95 6	83.6	112 4

Although the general development of this branch of stock breeding cannot for this reason be clearly determined from the index figures, certain fairly characteristic statements do result from these figures.

It may first be noted that, since 1929 at least, the proportion of young stock of under one year has not ceased to diminish as compared with the total stock numbers, the percentages being 14.7 in 1934, 15.7 in 1933 and 18.4 in 1929, and that the proportion of young stock one year old and over has on the contrary increased, 20.2 per cent. in 1933 as compared with 19.4 per cent. in 1929. The opposite, it is true, had occurred and in a much more marked way, in 1929, the percentages for 1928 being 13.6 for the one class and 20.8 for the other, this appears however to have been the result of internal causes as already indicated and does not prevent the conclusion being reached that the average slaughtering age has been lowered in the course of the period considered, and that the tendency already observed in the previous period is thus maintained.

Further, while the number of bullocks declined sharply in 1929, it then increased up to 1931 and since then has slightly decreased, the increase in the number of cows is nearly continuous and even constant, and this is the clearest fact lending itself to registration.

The proportion of the number of cows in the total head of stock rose from 54.1 per cent. in 1928 to 55.1 per cent. in 1930, after having dropped to 52.4 per cent. in 1929; from that year onwards the advance was continuous. In 1934 a proportion of 155 bullocks per 1,000 cows was found as compared with 178 in 1928.

On the whole, the development of stock numbers and of the production of beef seems to have followed the same course as in the former period 1920 to 1928.

It is however difficult to determine to what extent the production of meat at the source has increased, since no data are available as to the number of milch cows and still less on their productivity. The only factor at hand, showing for 1931 a relatively abundant milk production, cannot lead to any clear conclusion, since the general conditions and in particular the forage production were in that year particularly good.

The increase in meat production, in terms of the animals actually bred, appears to have been, in fact, more rapid than the internal consumption. The result has been since 1931, in spite of the lowering of the slaughtering age and the marked contraction of imports, a crisis of over-production, especially marked in the case of calves.

Speaking generally, and as summarising the preceding observations, a quite perceptible increase of the total production of meat, in terms of animals bred, should be noted in the course of the period considered, and an increase at least as marked in the actual supply for slaughtering. This increase has been nearly continuous and the fluctuations in consumption and in imports should normally determine considerable changes in the stocks and general conditions of the breeding. In 1933 and 1934, it was distinctly noted that the actual production appreciably exceeded the requirements of a consumption which had none the less increased.

SITUATION IN 1935.

Provisional statistics for 1935 show a stabilisation of numbers of stock and of meat production.

This stabilisation is characterised, not only by the stationary position of all kinds of stock as regards numbers, but, in cattle, by the very small increase in the number of cows and the relatively very slight reduction of the number of young animals under one year; in sheep, by the increase in the number of ewes (nearly 8 per cent. increase); in pigs by the very slight decrease in the number of sows, and the relatively small variations in the number of animals for fattening.

It may be of interest to consider side by side with the development of meat production, the trend of the national production of crops, etc. utilisable for live stock feed.

In the first place an appreciable increase is to be noticed in the extent of land devoted to forage crops.

	1934	1930	1923	1920	1913
			(thousands of hectares)		
Tubers and roots	1,334	1,299	1,075	1,037	1,112
Annual green forage	716	738	714	691	781
Sown and permanent grasslands	3,512	3,349	3,262	3,089	3,310
Natural meadows, grazing land, etc.	12,027	11,213	10,934	10,877	10,084
Total	*17,579*	*16,599*	*15,985*	*15,694*	*15,287*

Forage production has consequently increased in the post-war years, but in a much smaller proportion; as a whole in recent years a production slightly in excess of the pre-war has been attained.

In addition the production of cereals utilised as stock feed, rye, barley, oats and maize, and that of potatoes have slightly increased since the war. Although there are no exact statistics in the matter available there can be no doubt that the quantity of bran yielded has diminished, as also that of straw.

On the whole it may be reckoned that the quantity of soil products utilisable as stock feed and obtained in the country has undergone a slight increase since the war, for instance, comparing the averages of 1924-28 and 1929-33, and considering that the quantity has been taken as a whole from 1927-28 onwards somewhat higher than it was before the war.

On the other hand, and although no precise statistics are available, the development of the sugar refining and the brewing industries has undoubtedly brought about an increase in the national production of brewers' grains, beet pulp, molasses used as stock feeds.

In 1934, as a result of the crisis of over-production in meat, the area under forage crops remained nearly stationary with a slight diminution in 1935.

Although the course of foreign trade movements has been mainly determined by the variations in the price of meat on the national market, and although the object of the Government measures has been to protect national production rather than to increase it with a view to exclusive self-supply, it may be of some interest to indicate in parallel manner the course of the trade in feeding stuffs. The net imports (+) or net exports (—) are given below, with the addition, on the basis of some calculations that have been made, of the production of cake resulting from the transformation of imported oil-seeds:

	1935	1934	1933	1932	Average 1929-1933
			(thousands of quintals)		
Concentrated or prepared feeds:					
Oil cakes exported (net export)	— 1,322	— 394	— 502	— 1.308	— 1,125
Maize cakes, brewers' grains and beet pulp	— 79	+ 304	+ 309	— 4.397	— 56
Molasses for stock	+ 60	+ 120	+ 272	+ 38	+ 251
Smoked meat for stock	+ 10	+ 7	+ 7	— 1	— 1
Soil Products					
Fodder cereals: oats, barley, rye, maize	+ 8,119	+ 8,026	+ 9,978	+ 15,404	+ 12,737
Broken rice	+ 822	+ 1,404	+ 1,490	+ 748	+ 871
Bran and forage	— 1,428	— 966	— 1,305	— 1,008	— 1,360
Potatoes, other than early potatoes	+ 10	— 85	— 118	+ 1,956	+ 1,263
Potato flakes for stock	—	—	—	+ 2	+ 2

	1928	1924	Average 1924-1927	1920	Average 1911-1913
			(thousands of quintals)		
Concentrated or prepared feeds:					
Oil cakes exported (net export)	— 1,635	— 825	— 1,074	— 367	— 840
Maize cakes, brewers' grains and beet pulp	+ 304	+ 39	+ 165	+ 50	+ 530
Molasses for stock	+ 129	—	+ 26	—	—
Smoked meat for stock	+ 2	+ 1	—	—	—
Soil Products:					
Fodder cereals: oats, barley, rye, maize	+ 7.358	+ 7.508	+ 7,586	+ 10,864	+ 13.193
Broken rice	+ 619	+ 678	+ 766	+ 142	+ 408
Bran and forage	— 2.550	— 4.269	— 2,897	+ 375	— 486
Potatoes, other than early potatoes	— 151	— 1,502	— 554	— 1.745	+ 500
Potato flakes for stock	—	—	—	—	—

The increase in the imports of maize and other cakes, brewers' grains, pulps and molasses is the more characteristic from the fact of a parallel increase of the national production coming from the sugar refining industry and the manufacture of beer, so that the home consumption of these stock feeds has certainly increased. The case is the same for the production of oil cakes, the net export of which has decreased while the production has probably increased (the quantity of oil seeds and fruits produced in France rose from 9,500,000 quintals in the years 1923 to 1928 to 11,500,000 quintals in the following years, it was 13,500,000 in 1933 and 13,100,000 quintals in 1934).

On the other hand, even taking into account on the one hand the fact that there were crop shortages in 1930 which in part explains the large imports of 1931, and, on the other hand, the fact that the net exports of bran, forage and potatoes have decreased, the importance of the net imports of fodder cereals and of broken rice, in recent years.

Taking everything into account, it may be said that, up to 1934 inclusive, in proportion as the national production of meat developed, French stock breeders found themselves increasingly dependent of foreign supplies for live stock feeds, to an extent if not considerable, at least noticeable, and this in spite of the extension, noted earlier, of forage crops and grasslands.

This factor has undoubtedly contributed to bringing about the crisis which has characterised meat production in France in these last years, but it should be emphasised that it is in no way the direct consequence of the measures taken by the Government, since these were limited up to 1934 to the protection of the home market and did not deal with the actual production of meat.

The very marked change which occurred in 1935, and of which there were some signs in 1934, is connected, on the one hand, with the abundant crops of cereals and forage; on the other with the course of the crisis in stock breeding which led the stock farmers to reduce their purchases of concentrated feeds. The exactness of this statement may be verified and it should be brought into relation with the other factors which in 1935 characterised the French meat market; increased national production of slaughtered meats, reversal of the balance of foreign trade leaving a slight credit balance, a check in the progress of live stock numbers and especially in the increase in cattle and pig numbers.

II. — Variations in meat consumption.

The extent of meat consumption in France may be determined by means of the particulars supplied by slaughtering statistics, that is to say partly by the direct returns of the municipal abattoirs, and partly by calculations based on the yield of the slaughtering tax. The former are more reliable than the latter, but are much less complete and refer only to rather more than one third of the total consumption taxed, or 35 per cent. on an average; the calculations made for the total cousumption make it possible, moreover, to distinguish the supplies from foreign sources and the home killed meat.

In either case, these figures relate only to " commercial " consumption, or more exactly to the volume of meat placed on the market. The consumption of meat on the farm, if negligible in the case of cattle and sheeep, is comparatively large in the case of pigmeat: in certain regions it attains ten and even twenty kilogrammes per capita and per annum for the rural population, and thus may represent for the whole of France a tenth, if not more, of the commercial consumption of pigmeat.

With these reserves, it is possible by means of the slaughtering statistics to determine with satisfactory precision the relative extent of the consumption and its fluctuations, but the figures have been established only since 1927 and 1928.

In order to form an idea of the variations in consumption as compared with the preceding years, recourse may be had to the statistics of the city of Paris, the consumption of which represents a seventh of French consumption.

Before the war, these statistics included returns of the quantities leaving the abattoirs for Paris and also of the total quantities brought in directly by road or rail; the extent of consumption of the capital and its surroundings (department of Seine) was thus determined. Since the war, the quantities brought in by the gates or by rail are no longer returned; the statistics of the distributing markets distinguish the output of the Parisian abattoirs from the supplies from other sources, but the returns of the Halles Centrales make no distinction.

Any comparison between the period which preceded and that which followed the war can, accordingly, be made only on quite general lines. The variations in the post-war consumption can also only be followed approximately.

With this reserve, it will be noted that in the ten pre-war years, consumption in Paris maintained a fairly constant level, a little over 2,000,000 quintals, or 70 kg. per capita (not taking account of horseflesh to a volume of 114,000 quintals in 1909-1913), with a minimum in 1911 of 1,919,000 quintals, and a maximum in 1913 of 2,031,000 quintals.

The proportion of pigmeat entering into this consumption has increased fairly regularly from 18.5 per cent. (358,000 quintals) in 1904 to 20.4 per cent. (408,000 quintals) in 1910, subsequently slightly decreasing in 1912 and 1913 (19.5 per cent.); the consumption of pigmeat was larger during the years 1909 to 1913 than during the preceding years, by about 4 per cent. On the other hand, consumption of mutton underwent a marked and fairly regular decline, which may be placed at about 4 per cent. Consumption of beef and veal remained very nearly constant.

Although it is impossible for the reasons indicated above to determine precisely even for Paris the relative extent of the consumption in the post-war period as compared with what it was before the war, it may none the less be stated that it was smaller at least up to 1933 and perhaps up to 1934. The average of arrivals on the Villette market and of direct consignments to the abattoirs of Villette and Vaugirard, deducting the re-consignments to the provinces and abroad, remained decidedly lower for sheep during the whole post-war period: it was quite perceptibly lower for pigs up to 1929 and even up to 1930; for cattle, a slight increase in arrivals of fully grown animals and a decrease for calves is noted. For these latter as for pigs, account must be taken of the marked decrease in net weight of the animals sold, so that on the whole a reduction took place in consumption for all kinds of meats, very noticeable for mutton, appreciable for beef and veal, very marked for pigmeat.

The figures of the output of meats of various kinds from the abattoirs for delivery in Paris confirm these observations which remain exact even if account is taken of the increased importance of the arrivals of slaughtered meat at the central Halles, on the distributing markets and with the retail butchers, as well of direct purchases of live animals by these latter.

Roughly speaking, it appears to result from the different elements available for judgment, that the average consumption of Paris and of its suburbs during the period from 1922 to 1933 inclusive was lower by one fifth than that before the war. In 1934 and 1935 only, it appears to have recovered to somewhat the same extent, possibly to an even larger.

If the course of meat consumption in Paris during the post-war years is surveyed, taking as basis the same factors as before, very considerable fluctuations will be noted from one year to the next, alike for total volume and for the proportion of the various kinds of meat.

In a general way the total meat consumption has been certainly greater on the average for the period 1929 to 1933 than during the preceding period, but the increase is very difficult to assess in figures; roughly speaking, it would seem possible to estimate it at 10 to 15 per cent., taking as a basis on the one hand the total arrivals at the Villette market and the direct consignments to the abattoirs with deduction of the re-consignments to the provinces and, on the other hand the quantities leaving the abattoirs for Paris, the direct consignments to the distributing markets and the arrivals at the central Halles.

The consumption of the various kinds of meat has undergone still greater fluctuations than the total consumption, and it will be seen that up to 1927 inclusive, the variations for beef and veal are noticeably the inverse of those for mutton and pigmeat. Generally speaking, it may be observed that the consumption of mutton has neither increased nor diminished appreciably, while that of pork increased considerably in 1924-25 and then showed a marked decline in the following years falling in 1927 to the level of 1922-23. The consumption of beef and that of veal follow noticeably parallel courses, but it is observed that the consumption of beef has increased more noticeably than that of veal; the 1927-28 consumption exceeded by nearly one fifth that of 1921-23, after having been smaller in 1924-25, and the increase has been only half as large as for veal.

In view of the fact that for the period from 1927 to 1935 the slaughtering statistics show a general parallelism between the trend of the meat consumption of Paris and that of the consumption of France as a whole, it may be concluded that the preceding observations apply, at least approximately, to the total consumption in France.

From 1927 onwards, the meat consumption may be established in a much more precise manner, as already stated previously.

TABLE V. — *Slaughterings: Production and Taxed Consumption of Meat.*

1. — *Slaughterings in 31 municipal abattoirs.*

	1 Octobre - 30 September seasons							
	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30	1928-29	Average 1928-29 1932-33
	Thousands of head							
Full-grown cattle	766	749	695	614	573	683	748	663
Calves	944	937	878	815	754	812	876	827
Sheep	2,267	2,332	2,510	2,424	2,173	2,458	2,606	2,434
Pigs	1,526	1,347	1,255	1,371	1,265	1,091	1,119	1,220
Horses	106	112	117	116	128	123	108	118
	Thousands of quintals							
Total of meat slaughtered	*5,473*	*5,366*	*5,139*	*21,853*	*4,570*	*4,889*	*5,010*	*4,890*

Cammercial production and taxed consumption in the whole of France.

	Years								
	1935	1934	1933	1932	1931	1930	1929	Average 1929-1933	1927
	Thousands of quintsls								
Beef and veal:									
Slaughtering tax having been paid:									
Beef	6,390	6,240	6,030	5,460	5,170	5,970	6,400	5,806	5,500
Veal	3,140	3,080	2,970	2,720	2,460	2,520	2,680	2,674	2,490
Imported (1)	130	140	200	270	600	350	90	302	500
Total	*9,660*	*9,460*	*9,220*	*8,450*	*8,230*	*8,840*	*9,170*	*8,782*	*8,490*
Mutton and lamb:									
Slaughtering tax having been paid	860	870	970	970	870	960	990	952	1,000
Imported (1)	80	90	90	100	190	140	100	124	140
Total	*940*	*960*	*1,060*	*1,070*	*1,060*	*1,100*	*1,090*	*1,076*	*1,140*
Pigmeat:									
Slaughtering tax having been paid	4,170	3,810	3,520	3,630	3,610	3,100	3,030	3,378	2,500
Imported (1)	—	20	80	90	150	240	110	134	460
Total	*4,170*	*3,830*	*3,600*	*3,720*	*3,760*	*3,340*	*3,140*	*3,512*	*2,960*
Horseflesh	*470*	*480*	*520*	*490*	*560*	*550*	*510*	*526*	*400*
Total quantity of meat:									
Having paid the slaughtering tax	15,030	14,480	14,030	13,270	12,670	13,100	13,610	13,336	11,890
Imported (1)	210	250	370	460	940	730	300	560	1,100
Total taxed consumption	*15,240*	*14,730*	*14,400*	*13,730*	*13,610*	*13,830*	*13,910*	*13,896*	*12,990*

---

(1) Slaughtered meat, not including preserved meat.

The first observation to be made in connection with Table V is that the variations of the consumption are in direct and fairly close relation with the price fluctuations. The diminished consumption in the years 1929 to 1931 followed on the price rises registered in 1929-1930; inversely the increased consumption in 1932 corresponds to a general and continuous fall in market prices during 1931. In the first case it may be said that the price rise was the cause of the decline in consumption; in the second case the effect was reciprocal; the meat market was embarrassed by the fact of the lower consumption, the more so that, as will be seen later, the rise in prices encouraged importation of cattle and of meat from abroad; the supply exceeded the demand and brought about a relatively marked decline in prices, by comparison with those of other food stuffs; this in its turn led to a recovery in consumption of meat. There may be said to have been full play of the law of supply and demand on the meat market.

This observation will appear to be still better founded if attention is turned to the cattle market in particular, taking as criterion the price per kg. of net meat of second quality on the market of Villette:

	1930-1934	1928-1930	1926-1928
Beef and Veal:			
Variation of annual average prices:			
beef	— 50.0 %	+ 42.3 %	— 9.5 %
veal	— 43.0 %	+ 22.1 %	— 8.0 %

	1931-1935	1929-1931	1927-1929
Variation in annual consumption:			
total beef and veal	+ 17.4 %	— 10.3 %	+ 8.0 %
beef	+ 16.0 %	— 18.0 %	+ 11.0 %
veal	+ 20.0 %	— 6.0 %	+ 5.0 %

The relation is less clear for mutton, as the decline in sheep farming and the extent of the supplies from abroad constitute disturbing factors. It may however be observed that the 7 per cent. decrease as reported in consumption between 1927 and 1931 was parallel to a rise of nearly 24 per cent. on the prices between 1927 and 1930; from 1930 to 1932 prices declined very considerably and consumption remained constant but a slight rise of prices in 1933 was enough to make consumption decline at once by more than 10 per cent. in 1934, in spite of the slight drop in prices registered in that year.

The fluctuations registered in the prices of pig meat between 1927 and 1930 had no marked influence on consumption, although the perceptible rise of 15 per cent. which occurred in 1929 may perhaps have limited the development of consumption. In any case, it is noted that to a 6 per cent. fall in prices in 1930 there corresponds an expansion of consumption of a little over 6 per cent., and that to the more considerable rise of 24 per cent. on prices in 1931 there corresponds a fresh expansion of nearly 13 per cent. in consumption. When prices rose again slightly in 1932 and 1933, consumption declined slightly, and then recovered by nearly 16 per cent. in 1934 and 1935 when prices fell by 32 and 33 per cent. on the market.

The development of the consumption of the various kinds of meat in the period from 1927 to 1935 shows—and this is fairly normal in view of conditions of production—that the proportion of mutton and pigmeat increased very decidedly during the years of less consumption, diminishing as soon as consumption again expanded; the same observation might be made for horseflesh, but here the facts relate to the lower price of this meat at a time when other meats were dear.

It is of more interest however to bring out clearly the general trend of the consumption which is shown by the proportional index figures of the different kinds of meat in the total consumption.

					Average (1)	
	1935	1934	1933	1929	1929-1933	1927
			(Percentages)			
Beef and veal	63.4	64.2	64.0	65.9	63.2	65.4
Mutton and lamb	6.2	6.5	7.3	(2) 7.8	7.7	8.8
Pigmeat	27.4	26.0	25.0	22.5	25.3	22.8
Horseflesh	3.1	3.3	3.7	3.7	3.8	3.1
Total consumption	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

(1) The year 1931-32 of low consumption and large imports was exceptional in character and somewhat abnormal, as appears in the average. — (2) 8.0 % in 1930.

The decrease in consumption was very appreciable for mutton, while the consumption of pigmeat showed in comparison an increase nearly continuous and very marked. The lowered percentage for beef and veal is also somewhat remarkable, but inversely to what occurred in the previous period, the increase appears to be specially noticeable for veal, while it is almost nil for beef. The proportional index figures are falsified in this connection by the inclusion of imports, given without distinction, but it may be noted that the greater part, if not nearly the whole, of the imports consist of beef or veal. The difference in the proportion of imports between two import years, 1935 (or 1934) and 1929 is very small. Imported meat entered to the extent of 1 per cent. into beef and veal consumption of 1929, and to that of 1.3 per cent. in 1935. Hence the previous statement receives confirmation: the increase is more than 17 per cent. for veal, and is nearly nil for beef (0.5 per cent. at most in 1935).

The trend of consumption being thus determined, it may be observed that the consumption of the large urban centres included in the statistics of the 31 municipal abattoirs has undergone much greater fluctuations than those of the less important urban centres and of the rural areas. The comparison of the two parts 1 and 2 of the Table V given above should be made with discretion, as on the one hand, the first part does not take account of the imports and on the other hand the figures shown do not always represent the consumption of the town where the animals were slaughtered, as for example in Paris.

If the proportional variations in the slaughterings are compared for 1929 and 1935, years of relatively so small importation as to be negligible, the following results are obtained:

	31 municipal abattoirs	Whole of France
Beef	+ 2.4 %	— 0.2 %
Veal	+ 7.8 %	+ 17.2 %
Mutton	— 13.0 %	— 13.1 %
Pigmeat	+ 36.4 %	+ 37.7 %
Horseflesh	— 1.8 %	— 7.8 %
Total slaughterings	+ *9.2* %	+ *9.6* %

Summarising the observations already made, with the object of indicating the general trend of meat consumption in France, it may be said, that while fairly constant in the pre-war period, it was noticeably less in the years following the war, that it showed a tendency to increase along with the reconstitution of live stock numbers, but that the price rise brought about a fairly appreciable decline in 1931, a decline which in its turn resulted in a relatively considerable price fall, and by reaction, a recovery in consumption which returned in 1934 or at least in 1935 to nearly the level of 1909-1913.

The consumption of pigmeat has acquired since the war a relatively large importance and is increasing gradually as compared with that of butcher's meat, but up to 1930-31 it remained lower than it was before the war in the years 1909 to 1913.

The consumption of mutton has greatly decreased in the proportion of 40 per cent. as compared with the pre-war consumption, taking only the average consumption from 1929 to 1933; in the last two years 1934 and 1933 there has been a very marked decrease.

The consumption of beef has been characterised in the post-war period by very marked fluctuations; it declined by 16 per cent. between 1929 and 1931, then increased by 25 per cent. up to 1935, thus regaining the extent it had before the war.

The consumption of veal underwent only slight variations up to 1931, and remained nearly at the pre-war level, but since then, under the effect of the fall in prices, it tends to assume an increasing importance, and in 1935 constituted one third of the consumption of all meat derived from cattle and one fifth of the total consumption.

The average per capita consumption might be established as follows:

	1935	1934	1933	1931	1929	Average 1929-1933	1927
				(kilogrammes)			
Beef and veal	23.0	22.6	22.0	19.7	22.2	21.2	20.7
Mutton and lamb	2.24	2.29	2.53	2.5[illegible]	2.64	2.58	2.78
Pigmeat	9.93	9.13	8.60	8.98	7.62	8.41	7.23
Horseflesh	1.12	1.14	1.24	1.34	1.24	1.26	0.98
All meat	*36.3*	*35.1*	*34.4*	*32.5*	*33.7*	*33.3*	*31.7*

It may well be repeated here what has been said previously, *viz.*, it is " commercial " consumption alone that is in question, and that there is a quite appreciable family consumption of pork and other pigmeat, representing approximately at least half of that here shown, so that the actual total consumption would attain or exceed 40 kg. per capita in 1935.

Even so this average consumption appears to be much lower than that of Paris, and it may be said that the provinces consume per capita less by nearly half than the capital; speaking more exactly the consumption of the rural districts is less in the same proportion than that of the towns.

P. DE VIGUERIE.

HAIL INSURANCE IN ITALY

CONTENTS: Societies or companies dealing with this branch of insurance in 1935. Agreements between these societies — The insurance contract – Regulation of insurance societies – Non-compensation for losses under a certain limit. – Resolution taken in 1935 by the Corporation of Insurance and Credit (*Corporazione di Previdenza e credito*). – The meteorological problem – Statistics on the activity of these societies.

In 1935 there were operating in Italy in this branch of insurance 20 ordinary share companies and co-operative societies and 4 mutual insurance societies(1)

In addition to these undertakings there were in 1932 some thirty associations dealing with hail insurance and of an exclusively local character. These were small societies of co-operative or mutual type, operating either by the terms of their constitution or in actual fact, within a limited area, the annual receipts of which in premiums or additional payments were not to exceed normally 30,000 liras for each branch and 100,000 liras for the whole of the branches operated taken together (2). As will be seen later, important modifications have been introduced into this form of hail insurance by recent legislative measures. In 1932 there were about thirty of these societies undertaking hail insurance (1).

---

(1) The following is the list of these organisations as given in the *Annuario Italiano delle Imprese Assicuratrici* issued by the " Federazione Nazionale Fascista Imprese Assicuratrici ", 1935.

Ordinary Share Companies or Co-operative Societies:

" Alleanza Securitas Esperia. " Rome (1915) cap. 8,550,000 liras (6,000,000 paid up).
" Anonima di Torino. " Turin (1833), cap. 18,000,000 liras (12,000,000 paid up).
" Anonima generale di assicurazioni. " Milan (1907), cap. 5,000,000 liras (3,250,000 paid up).
" Anonima generale di assicurazioni. " Milan (1907), cap. 5,000,000 liras (3,250,000 paid up).
(In 1934 this company incorporated the " Aurora ").
" Anonima grandine. " Milan (1890), cap. 6,000,000 liras (fully paid up).
" Assicurazioni d'Italia. " Rome (1923), cap. 15,000,000 liras (fully paid up).
" Cassa generale di assicuurazioni. " Milan (1911), cap. 1,239,000 liras (fully paid up).
" Compagnia di assicurazioni di Milano. " Milan (1825), cap. 64,000,000 liras (fully paid up).
" La Fenice di Venezia. " Venice (1913) cap. 1,000,000 liras (750,000 paid up).

The first company to operate hail insurance in Italy was the " Società di compensi vicendevoli contro i danni della grandine " founded at Milan in 1827. By the rules of this company two classes of products and two zones were established: plain and hill. The premiums for cereals, mulberry leaves and meadows were fixed at 1.50 for the plain and 2 per cent. for the hill country: for the products more liable to damage from hail storms, the premiums were fixed at 3 and 4 per cent. respectively: to these premiums an additional charge was made of 0.50 per cent. for administrative costs.

This company, which did not prosper, was succeeded in Lombardy by the " Assicurazioni generali di Venezia " which in 1836 made a beginning in this branch of insurance in Lombardian Venetia, and was followed in 1853 by the " Riunione adriatica di sicurtà. " These societies soon after extended their activities to other Italian regions. In 1857 there appeared in Milan the " Società di mutuo soccorso contro i danni della grandine per le provincie lombarde," which took an important place in the activity of Italian hail insurance societies.

In Piedmont the " Società generale e reciproca contro i danni della gragnuola " had as early as 1830 received authorisation from the King to exercise this branch of insurance. This society however was wound up before the end of the first half of the century.

In 1855 an attempt in the direction of public hail insurance was undertaken in the Grand Duchy of Modena. The government advanced to a private com-

---

"L'Italica." Milan (1904), cap. 4,500,000 liras (3,500,000 paid up).
"La Pace." Milan (1919), cap 10,000,000 liras (fully paid up).
"La Prudenza." Milan (1920), cap. 2,250,400 liras (fully paid up).
"La Terra." Milan (1919), cap. 2,000,000 liras (fully paid up).
"La Vittoria " Rome (1912) cap. 5,000,000 liras (2,922,110 paid up).
" Reale grandine." Bologna (1891), cap. 2,250,000 liras (fully paid up).
" Riunione Adriatica di Sicurtà " Trieste (1838) cap. 100,000,000 liras (50,000,000 paid up).
" Società Cattolica d'assicurazione." Verona (1895) cap. 2,349,165 liras (fully paid up).
" Unione interprovinciale agricola." Cremona (1893), cap. 373,600 liras (80,840 paid up).

Mutual Insurance Societies:

"Mutue riunite di assicurazione grandine." Milan (1934). (Result of amalgamation of the "Mutua agraria grandine" and of the " Vercellese ").
" Padana grandine." Milan (1915).
"Società reale mutua di assicurazioni." Turin (1828).
" Vecchia mutua grandine ed Uguaglianza." Milan (1934). (Result of amalgamation of the two societies of which the names figure in that of the new society).

Foreign Companies:

" L'Abeille grandine." Paris, Milan, cap. 4,800,000 francs (fully paid up).
" L'Union." Paris, Genoa, cap. 50,000,000 francs (fully paid up).
" Sun Insurance Office." London, Milan, cap. £ 2,400,000 (£ 600,000 paid up).

(2) ACERBO G. La cooperazione agraria in Italia 1932 p. 55. Gli Istituti e le Imprese di Assicurazione in Italia. Ministero delle Corporazioni 1934, p. 90.

(3) *L'assicurazione.* Quindicinale di tecnica, cronaca e giurisprudenza assicurativa. Rome, 1-15 January 1935.

pany the funds necessary for the compensation payments and for the administrative expenses and recouped itself out of the receipts of the land tax. On the incorporation of the Grand Duchy into the Kingdom, the operations of the Modena company came completely to an end (1). During the period 1894 to 1907 this branch of insurance was operated by 36 companies or societies, as follows: 4 national and foreign share companies, 19 co-operative societies and 12 mutual insurance societies. Among these institutions 10 co-operative societies and 6 mutual insurance societies ceased operations during this period either completely or in respect of the hail insurance branch (2). In 1924 operations were effected by 28 national and two foreign institutions (3). In 1935, as already shown, this branch of insurance was operated by 24 companies or societies including three foreign companies.

Since 17 February 1926 a consortium (*Consorzio italiano grandine*) existed between nine of these institutions, with headquarters at Milan; the object of this body was reciprocal interchange of insurances relating to products subject to heavy risks. This consortium also deals with the study of problems which have reference to the industry of hail insurances. The following companies or societies form part of this organisation: Anonima grandine, Assicurazioni d'Italia, Compagnia di assicurazioni di Milano, Italica, Mutue riunite di assicurazione grandine, Reale grandine, Riunione adriatica di sicurtà, Società cattolica di assicurazione and the Vecchia mutua grandine ed Eguaglianza.

On 28 December 1933, an agreement (*concordato italiano grandine*) was signed by 22 hail insurance institutions, the object in view being the possibility of applying the premium rates which are strictly necessary for a sound exercise of this branch of insurance, such end to be effected by an establishment of tariffs on scientific principles and by a reduction in costs, all without encroachment on the principle of free competition. The following companies or societies subscribed to the agreement: Abeille-grandine, Alleanza Securitas Esperia, Anonima grandine Assicurazioni d'Italia, Aurora, Cassa generale di assicurazioni, Compagnia anonima di Torino, Compagnia di assicurazioni di Milano, Italian Excess, Italica, Mutue riunite di assicurazione grandine, Pace, Prudenza, Reale grandine, Reale mutua, Riunione adriatica di sicurtà, Società cattolica di assicurazione, Sun, Terra Union, Vecchia mutua grandine ed Uguaglianza, Vittoria.

Some account will be given later of the agreement reached between the Fascist Farmers' Confederation and the National Hail Syndicate of the National Fascist Federation of Insurance Undertakings, in relation to certain conditions of the policies and in particular to the limit of damages below which compensation is not given.

The insurance contract in respect of hail insurances and in general for insurances against losses is regulated by articles 417-422 of the Commercial Code in which are contained general provisions relating to the insurance contract, and also by articles 423-448 of the same Code which relate particularly to insurances against loss.

---

(1) PORRI V. Lo sviluppo delle imprese assicuratrici in Italia nei rami elementari, Torino 1928, pp. 100 *et sqq.* Rocca G. Assicurazione privata e sociale, Milano 1934, p. 177.

(2) CAVALIERI E. Le assicurazioni contro i danni della grandine. Relazione al Consiglio della Previdenza e delle assicurazioni sociali. Appendice, Roma 1909, p. 201.

(3) Gli Istituti e le Imprese di assicurazioni private in Italia nel 1925.

In regard to insurance societies, these are regulated in the first instance by the Law of 29 April 1923 which set up a special legal system for safeguarding insured persons and all important interests relating to the operating of insurances and to the control and employment of the funds which accrue to insurance societies (1).

The provisions of this basic law, which has undergone amendment several time do not apply, *inter alia*, to agricultural mutual insurance associations constituted in accordance with the Law of 7 July 1907 and the Decree Law of 2 September 1919. This subject will be dealt with at a later point (2).

The Decree of 1923 of which the more important provisions will be here examined, taking count of subsequent amendments, is divided into 8 headings: preliminary provisions, life insurances, insurances against damage, balance sheets of private undertakings, government supervision over private undertakings, liquidation and failure of private undertakings, general and penal provisions, temporary and definitive provisions.

In accordance with the provisions of this law there are excluded from operating insurance: joint stock companies, companies in which the shareholders have no liability beyond their investment therein and limited liability companies; also companies the object of which is to operate insurance exclusively abroad. The national undertakings desiring to operate insurance and reinsurance against damage or loss, as well as foreign undertakings the object of which is to operate in Italy insurance against damage or loss and those which, in order to operate reinsurance in these branches, desire to establish representatives in Italy, must obtain in advance an authorisation from the Ministry of Corporations by means of the submission of an application, and the further submission, in the case of national undertakings, of the proof of their legal constitution and, if foreign undertakings, of the proof that they have legally instituted in Italy a representation in the terms of article 230 of the Commercial Code. The presentation of this proof is also necessary if the foreign companies desire to establish representation in Italy in order to operate re-insurance. Authorisation is not granted to any foreign company the country of origin of which does not allow Italian undertakings to operate on a footing of equality with its own national undertakings. The Ministry of Corporations fixes, as occasion arises, the special conditions of admission of foreign undertakings and of the prosecution of their operations as rendered necessary by the application of the above principle of parity of treatment.

---

(1) Gli Istituti e le Imprese di Assicurazione in Italia, already quoted. 1934, p. 71.

(2) Decree-Law of 29 April 1923, converted into law on 17 April 1925, amended by the Decree-Laws of 24 September 1923, 5 April 1295, 27 October 1927, 17 July 1931, 26 October 1933 and 12 July 1934. The last-mentioned decree-law was converted into law, with certain amendments, on 12 February 1935.

The national and foreign undertakings which, when the Decree Law of 12 July 1934 came into force, were not yet empowered to operate in Italy, must have a share capital or a guarantee fund, in the case of mutual insurance societies of not less than 5,000,000 liras, one half at least being paid up, for the operation of hail insurance as well as accident insurance, insurance against civil liability and other branches. If the business includes life insurance, and payment of lump sums, the share capital or guarantee fund must amount to 20,000,000 liras; and to 10,000,000, of which one half should be paid up, if the business includes insurance against fire and transport risks. In the case of undertakings operating in a single branch of insurance, provided that the risks specifically named above are not included, it may be prescribed by Decree of the Ministry of Corporations, that the capital or guarantee fund be limited to 2,500,000 liras.

With regard to undertakings for insurance and payment of lump or capital sums which were already operating at 30 June 1934, the law prescribed that they should show that the paid up capital, in the case of share companies or co-operative societies, or the guarantee fund, in the case of mutual insurance societies, is not less than two fifths of the sums shown above.

The provisions in question do not apply to life insurance and transport insurance societies in certain conditions, nor to societies for insurance against damage operating, within the limits of a province in which they have headquarters, in a single branch not specifically indicated above (hail insurance has been specifically named) provided that the total of annual premiums does not exceed for each commune the limit indicated by article 33 of the Decree-Law of 29 October 1927 (that is, 60,000 liras for each branch and 200,000 liras for all branches taken together)

Apart from the provisions relating to capital, there are others relating to guarantees or securities. National or foreign undertakings, including those of mutual or co-operative form, must, in order to operate insurances other than those on the duration of human life, constitute and immobilise, in favour of the mass of insured persons, for the contracts coming under the Italian schedule, a guarantee which should amount at the end of each financial year to 35 per cent. of gross premiums of the past financial year relating to insurances taken out, in the course of the year itself and previously to it, on risks included in the Italian schedule. In the event of reduction of the guarantee so immobilised, the Minister of the Corporations may arrange that the surplus shall be set aside for the compensation of damages not liquidated or not yet paid. This proportion is reduced to 15 per cent. for short period risks, in accordance with the rules and the distinctions established by the Regulations, except for hail and live stock risks.

The guarantees just referred to cannot in any case be less than the sum of 200,000 liras for national undertakings, which according to the terms of their constitution, may operate a single branch of insurance, as well for the foreign undertakings which have been empowered to operate in Italy a single branch of insurance; these guarantees cannot be less than 500,000 liras for the national and foreign undertakings which in accordance with their rules may operate or have been empowered to operate several branches of insurance.

Mutual insurance associations and co-operative societies which in virtue of the provisions of their constitution or even simply as a matter of fact operate in a single commune, are not subjected to the obligation of establishing a guarantee, provided that the premiums or annual contributions do not exceed 30,000 liras for each branch and as total for all branches operated, 100,000 liras.

The minima guarantees are reduced to one fourth if the premiums or contributions are higher than 30,000 liras, but less than 60,000 liras for each branch, and than 200,000 in all for all branches operated.

For the balance sheets of insurance societies it has been established that the period of three months beginning from the close of the financial year, allowed for the approval of the balance sheet, as stated in Art. 154 of the Commercial Code, is extended to six months; for undertakings operating reinsurance exclusively, this period may be extended to eight months by the Minister of the Corporations on the request of the undertakings themselves.

The balance sheet, established in conformity with the model approved by Royal Decree in execution of Art. 177 of the Commercial Code and the other documents enumerated in Art. 180 of the same Code, must be presented to the Ministry of the Corporations within a month from the date of the approval of the balance sheet. Foreign undertakings are empowered to establish their balance sheet in the manner prescribed by the law of their own country; but in addition they have each year to draw up a special report for the operations realised in Italy in accordance with the model prescribed.

Apart from the books prescribed by the Commercial Code, insurance societies have to keep subsidiary books and registers as prescribed by the regulations for the control of the balance sheet.

A very important provision of the law in question is also the one which obliges the societies to constitute a premium reserve for risks other than life risks, consisting of such premiums as are in course at the end of the financial year. This is done by entering on the balance sheet the amount of such fractions of premiums as relate to subsequent financial years as well as the amount of the instalments of premiums paid in advance. Opportunity is given for calculating the carry-forward of the premiums when it is not fixed by each insurance contract, in accordance with the respective dates of expiry, in such a way that normally it is not to be less than 35 per cent. of the premiums referring to the risks incurred during the financial year. As regards short period risks to be determined on the bases fixed by regulation the reserve is not to be lower than 15 per cent. of the premiums.

The government supervision over private insurance undertakings, as regards the application of the provisions of the law under consideration here, is exercised by the Ministry of the Corporations. This body has power to organise inspections held at the headquarters, or at the general office representative of the undertakings, as well as at the establishments dependent thereon, agencies, bureaux, premises which in any way whatever carry out insurance or reinsurance or which act as intermediaries. These inspections are made for the purpose of controlling the accomplishment and the due observation of the provisions inserted in the legislative measures and in the decrees of authorisation.

The Ministry of the Corporations is empowered to note any infringements of rules and does so by means of a process of checking effected by its own officers. The undertakings and their administrators, representatives, directors, agents, have to place at the disposal of the officers delegated for the inspections all books, registers and documents; they are expected to supply any explanations and information that may be required of them.

In the event of failure to observe the provisions mentioned and in the case of irregularity of working, this Ministry may prohibit the societies in question from effecting fresh business so long as they have not re-established the legal position. In the event of continued infringements of the provisions, the Ministry has power to place the contravening undertakings in liquidation.

The local agricultural mutual insurance associations are regulated by Decree of 2 September 1919 (1) and by the decree of execution of 20 February 1920, as well as by the subsequent legislative provisions contained in the amendments and additions to this law.

These societies, which, in order to come under the legislative provisions just described, must operate in a strictly local area, must not aim at profit-making, and of which the office-bearers must be unpaid (except the secretary and treasurer, by their own consent), were able up to the law of 1934, to secure corporate standing by means of a decree of the prefect. This law introduced, *inter alia*, very important amendments not merely into this question but into that of guarantee funds which the societies must hold in order to be able to practise insurance in certain branches.

The provisions relating to the guarantee funds have already been indicated when we dealt with the law of 1923 and the subsequent laws. We also refer the reader to what has been said above on the provisions relating to guarantees contained in the Decree-Law of 27 October 1927.

Assignment of corporate existence by means of decree of the prefect cannot in future be pronounced for societies engaged in branches of insurance specifically named in art. 1 of the Decree of 1934 already quoted, and among these branches is that of hail insurance. During the period up to 31 December 1935 the societies already recognised on the coming into force of the Decree of 1934, and the insurance societies operating in a single commune and with annual contributions not exceeding the limit indicated in article 33 of the Decree-Law of 29 April 1923, were obliged to take the necessary measures for limiting the purpose of their association. The provisions of the law of 13 July 1933 relating to the amalgamation and liquidation of insurance societies are applicable to these.

By the regulations of 1920 it was established that the insurance societies here in question must conduct each branch of insurance separately and that the rules of the societies, in addition to a general registration entrance fee, must prescribe a special entrance fee for each branch in which any member may desire to participate. Societies are moreover permitted to combine in a single working the different branches of insurance, when in consequence of the special uniformity of the agricultural industry or of the special organisation of the farms relating thereto, it is possible to group the various risks covered by the societies, and when the rules oblige the members to insure all the risks so grouped.

---

(1) Decree of 2 September 1919 converted into law on 17 April 1925 amended by the Decrees of 21 October 1923, 27 October 1927 and 12 July 1934.

The terms of constitution of these mutual insurance societies must establish not only the total of the entrance fees mentioned, but also the rules to be followed for the constitution of the reserve funds of each branch of insurance, and the precise methods of levying first charges on these funds in case of deficit. The distribution of deficits on the working as well as the assignment and distribution of remainders must be effected separately for each branch of insurance.

The general reserve fund is intended to meet any depreciations and losses in the assets and to realise the other purposes contemplated in the terms of constitution. This general reserve fund is constituted by means of the general entrance fees and by means of a first charge of 10 per cent. on the special reserve funds about to be described, joined to the interest on the general reserve fund.

The special reserve funds for each branch of insurance are constituted by means of special entrance fees for the branches mentioned and by a first charge on the profits realised. This charge in the case of hail insurance will be 50 per cent. together with the interest charges on these special reserve funds. These reserves must be effected so long as their total amount has not reached three times the amount of the contributions of the last financial year. In the event of the reserve funds falling below that limit the society is expected to build up the reserves again.

Members admitted to the mutual insurance society are expected to pay the general entrance fee and the special entrance fees; the annual premiums in advance in proportion to the value insured, and any additional payments prescribed by the rules of the society; in addition it is understood that they insure with the society, without any limitation, all the property in their possession, exposed to one and the same risk, except in certain cases. Whenever on the occurrence of hail, members see their insured products damaged they should immediately give notice of the loss to the insurance society at the same time indicating the right measures to be taken to prevent any increase of the damage done. The damaged products must be left untouched until the society has proceeded to the survey and in any case until the third day after the damage incurred.

The maximum of the compensation payments which, having regard to the total of the damage incurred, may be granted by the mutual insurance societies, must be fixed by the rules of the societies. In any case however this maximum cannot exceed 90 per cent. in the case, *inter alia*, of hail insurance. Members of the mutual insurance society cannot in any case insure that part of the risk which is not covered by the society.

In accordance with the law of 1919, the societies in question may take out reinsurance and provide for the safeguarding of their interests by combining into federations of mutual insurance societies or reinsurance associations obtaining corporate status from the Ministry of the Corporations. This body by the same decree approves the terms of constitution of such federations which must be resolved upon by the general meeting of the representatives of the mutual insurance societies thus combining. For the constitution of these organisations the initial adhesion of at least ten mutual insurance societies is required. If later the number becomes smaller, the organisations may none the less continue to function by decree of the Minister of Corporations.

It is the business of these organisations for reinsurance to see that the rules governing the mutual insurance societies so federated are observed and their internal character preserved; they should also institute a check on the regular keeping of accounts and on the administration in general, and should exercise all functions of a similar kind.

For the purposes of reinsurance, the proportion of the annual contributions made by each mutual insurance society must be approved by the reinsurance organisations, which should also determine the maximum and minimum limit of the share of the risk which should remain at the charge of the society.

These organisations are under the supervision of the Ministry of Corporations. In the event in which these organisations do not conform to the legislative rules and in the event of their being unable any longer to fulfil their functions, the Ministry of Corporations may take steps in view of the liquidation of these organisations

Mutual insurance societies which are not formed into federations do not enjoy the fiscal and financial advantages established by the legislative measures about to be examined

The federations of mutual insurance societies or reinsurance associations which conform to the legislative rules in question enjoy the advantages granted to these agricultural mutual insurance societies. These advantages consist either in the action of the Ministry, or in the subsidies under the regulation of 1920, or in a number of fiscal privileges.

By the Decree-Law of 27 October 1927 and in that of 12 July 1934 the Government was authorised to co-ordinate and to consolidate in a single law the various provisions contained in the Decree-Laws of 2 September 1919 and of 29 April 1923 and in the subsequent Decrees by which they were completed or amended.

We now turn to a government measure of great importance for hail insurance, relating to the general obligatory conditions of the policy for hail insurance. A Ministerial Decree of 29 February 1936 replaces the conditions established by decrees which were promulgated on 20 April 1928, 28 February 1930 and 28 February 1931.

Whereas the Decree of 1928 had, *inter alia*, introduced into all new contracts the clause for non-compensation of losses below a certain limit, the application of which was suspended in 1929, the Decree of 1930 re-established the optional nature of this clause by means of a payment of a supplementary premium; in 1931 however the obligatory nature was restored and finally revoked by the last measure which now comes under review here.

In the first place there are certain provisions relating to the duration of the insurance contract If this is stipulated for a number of years, its duration must become the subject of a separate declaration inserted in the policy and signed by the insured person who shall indicate the number of years for which it is made, signing with his own hand. When the contract has expired, it is not renewable except on the express desire of the two parties. No conditions may be introduced on the policy, and any engagement taken with the object of tacitly prolonging the duration of the contract, or of making it conditional on losses or on other circumstances, is prohibited.

The policy is agreed under the limiting clause referred to as follows: (*a*) an 8 per cent. limit for non-compensation for tobacco, gourds and fruits; (*b*) 6 per cent. for hemp, maize, tomatoes, beet seed, castor oil plant and grapes; (*c*) 4 per cent. for all other products. For losses in excess of these limits, only the excess is compensated.

This limit may be set aside by agreement by means of the application of a super-premium at the maximum rate of 20 per cent. of the premium.

The possibility of doubling the limit fixed is provided for by means of a reduction in the premium at the minimum rate of 30 per cent.

The decree establishes that the payment of the loss must be made on the basis of the prices fixed in the policy for each product, but that none the less it may be agreed that in the case of very severe damage or complete loss of the products, the saving realised on the costs of harvesting may be deducted from the compensation payment.

As regards the form of the policy, it has been established that there should therein appear only the premium, the super-premiums either in respect of the clause limiting compensation or of the survey expenses, the reductions of the premium either as against the doubling of the limit of non-compensation or against the deduction of the savings realised on the costs of harvesting, or, for contracts for more than one year, also the supplement for management not above 10 per cent. of the premium, the governmental tax and the interest charge on the bank draft issued for the payment of the premium.

In regard to the normal expiry of risks, this occurs when the product has arrived at maturity and not later than 10 June for turnips; 20 June for mulberry leaves and not beyond the end of the silkworm season; 15 July for fenugreek, flax and lupin, and flax-seed; 31 July for oats, beans, wheat, barley, rye, spelt and vetch; 31 August for hemp; 15 September for lucerne seeds, clover and "sulla;" for all other products, 31 October. The period of the risk may be prolonged, without super-premium, beyond that of the dates indicated on the request of the insured person, at the moment of making the contract, for zones where the vegetative cycle would finish normally later than these dates, and with super-premium, when the prolongation is requested in the course of insurance in consequence of facts of an exceptional kind and impossible to foresee. In all cases, it is understood that the risk terminates five days after the plant cultivated and insured has been cut and that it never goes beyond the dates here given.

If on a single insured plot or on several such, there has been total destruction or at least destruction of one third of the products in consequence of various hail losses, the insured person has a claim to have these lots removed altogether from the contract, and to have the premium reimbursed to him, if he makes the request before fifteen days before the time of the harvest.

A proportional account then is made from the day of the written request up to the date presumed for the expiry of that the risk relative to the product for which this removal of lots has been requested.

The percentages of losses in the event of subsequent hail storms must always be referred to the total of the value originally insured.

For every notification of loss the insured person should make a deposit of one per thousand of the total insured for the products in respect of which damage is notified, with a minimum of 30 liras and a maximum of 100 liras for each notification.

The survey expenses are not to exceed 7 per cent. of the damage paid for and in any case they are not to exceed in all 100 liras nor to be less than 15 liras. If the damage turns out to be within the limit of non-compensation, the survey expenses are paid by the company which also has to make the deposit already mentioned. For each loss notified and not recognised by the survey, the insured person must pay the costs of the survey as met by the society for the part in excess of the deposit mentioned above. Exemption from costs of survey may be agreed upon by means of increase in the premium to the extent of 10 per cent.

The determination of the damage may be established by amicable arrangement among the parties concerned or by means of a survey carried out by one or several experts appointed by the company or society. These must be persons qualified in agricultural science, engineers, expert surveyors or agricultural experts legally authorised for the exercise of their profession. The party not accepting the survey may demand a further survey to be carried out by a board of experts, appointed one by the company, one by the insured person and the third by the two others from among persons registered in the category syndicates. In the event of the experts not being agreed on the choice of the third, this selection shall be made by the President of the Provincial Economy Council who is obliged to choose the third expert from among the persons registered in the category syndicate. This appeal survey cannot be impugned; it thus becomes effective and irrevocable. Whatever may be the result of the survey, each party shall pay the expert chosen by such party and half of the costs occasioned by the third expert.

In the case in which the harvest is close at hand, the report of the damage must be made within the five days beginning from the date of the declaration of the disaster.

The insured person must notify by means of a formal declaration the agency which issued the policy within three days from the time of the occurrence of the disaster.

In connection with this Ministerial Decree, the most important provisions of which have been set out here, mention should be made of the agreement reached in the course of the first months of 1930 between the Fascist Confederation of Farmers and the National Hail Syndicate of the National Fascist Federation of Insurance Companies, as the conclusion of a series of preliminary negotiations which took place between the categories concerned on the basis of the resolution of the Corporation of Credit and Insurance. This body in the month of June 1935, on closing its discussions on the problem of the improvement of insurance against hail damage, had invited the associations concerred to come to a collective economic agreement for the regulation of certain conditions of the insurance contract.

It would seem of interest to set out here not only the provisions còntained in the agreement referred to, but also the resolutions of the Corporation of Credit and Insurance, and the desiderata of the categories concerned which give expression to tendencies and objects in view.

The agreement established that: (*a*) the limits for non-compensation fixed by the legislative measures in force may be abolished in consideration of a super-premium not exceeding 20 per cent., or on the other hand may be doubled in consideration of a reduction of the premium not less than 30 per cent.; these provisions are equally applicable to contracts covering more than one year if in course; (*b*) the variable tariff may be granted on the request of the insured person (with power to extend the concession to the pluriannual contracts in course) for the vines, hemp, tobacco, tomatoes, fruits and gourds; (*c*) if the tariff fixed for the pluriannual contracts is higher than that adopted by the company or society in question year by year, it may be reduced to the extent of that, with deduction of the rebate applicable in view of a pluriannual contract; (*d*) the supplement for management must be 10 per cent.; (*e*) exemption from the survey costs is granted in consideration of a super-premium of 10 per cent.

The resolution of the Corporation of Credit and Insurance contains in the first place an invitation addressed to the syndical associations concerned to come to a collective economic agreement in which, after having recognised the optional character of insurance against hail, there shall be introduced the following conditions: (*a*) offer made to growers of varying types of policy (with or without limit of non-compensation) adapted to the varying requirements of the farms; (*b*) opportunity given to growers to allow the deduction of costs of harvesting saved in the case of very serious or total damage in consideration of a fair reduction of the tariff; (*c*) power given to growers to apply for exemption from survey expenses in consideration of a 10 per cent. increase of the tariff; (*d*) modification of the existing rules as regards the deduction of harvesting costs saved; (*e*) institution of an office responsible for the collection of the statistics, a task otherwise entrusted to the Corporation; (*f*) the necessity of a wide policy of propaganda for the purpose of securing not merely a knowledge of the extent and the spread of hail insurance among the agricultural classes, but also of encouraging the improvement of production in view of obtaining a more effective resistance against hail, and a more scientific distribution of crops from this point of view.

This resolution represents the conclusion of the proposals submitted and of the discussions carried on at the time of the session of June 1935 of the Corporation.

The parties concerned in this important question had submitted proposals and arguments which constituted a concrete manifestation of their respective points of view of great interest.

The following are the points which have been submitted to the examination of the Corporation.

On the side of the Fascist Confederation of Farmers:

(*a*) the excessive number of the hail insurance companies and the consequent increase in general expenses, costs of survey, and commissions—all of which bring about an increase in tariffs; (*b*) the necessity for reducing the cost of the service in view of getting rid of the vicious circle between extension of tariffs and extension of the covering of risks.

On the side of the Fascist Confederation of Farm Workers:

(*a*) optional introduction of a limit of non-compensation; (*b*) abolition of the concordat for the application of tariffs; (*c*) power granted to the farmer not to reckon in the liquidation the harvesting costs in the case of total loss; (*d*) advisability of organising enquiries for the formation of a national mutual hail and fire insurance association in recognition of the fact that hail constitutes a national calamity and that in consequence the State ought to participate in the payment of compensation; (*e*) inadvisability of granting legal privilege to bills of exchange issued for the payment of the premium in accordance with a request made by the Company in this sense; (*f*) advisability of examining the problem of hail insurance by the Corporations in general meeting and from the standpoint of the breaking up of the insurance industry which should be replaced by a new organisation under a mutual form remaining in the hands of the agricultural producers.

On the side of the Fascist Federation of Insurance Undertakings: (*a*) the low range of premium rates practised by Italian insuring institutions which finds confirmation in the fact that the companies frequently show a loss on the year's working and that in the course of the last five years the losses paid have exceeded the premiums accepted, without taking into account costs of working; (*b*) the slowness with which the idea of insurance penetrates among the agricultural population; (*c*) technical difficulties and drawbacks of compulsory insurance (this has been proved by the failure of experiments in other countries); (*d*) the impossibility of reducing beyond certain limits the working expenses of the companies, in spite of all measures taken with this object; (*e*) the impossibility of adapting the cost of the insurance to the paying power of the insured persons, and the necessity of adapting the premium to the risk if the companies are to avoid difficulties in effecting reinsurance; (*f*) the necessity for fixing premium rates by taking into account statistics collected in the course of many years' experience; (*g*) the need for revision of the principles at present ruling hail insurance, *viz.*, modification of the system of the application of the limit for non-compensation and its extent; introduction of the condition by which, in the case of total loss, the harvesting costs saved are deducted from the compensation payment; concession of legal privilege to bills of exchange issued in payment of premiums; increase of the contribution of insured persons to the costs of assessment of losses.

On the side of the Fascist Confederation of Workers in Credit and Insurance Undertakings: (*a*) abolition of the hail concordat; (*b*) thorough examination of the problem of the number of companies; (*c*) necessity for obtaining at all costs the reduction of costs of the assessment of losses (*rilevazione*); (*d*) advisability of granting legal privilege to bills of exchange issued for payment of premiums (1).

Before concluding this article, some mention may usefully be made of an important study made by Father Bernard M. Paoloni, O. S. B., on the distribution of hail storms and the damage caused by hail in Italy.

This article which will appear in the course of the next few months is based on statistics collected in 4000 communes by the Fascist Confederation of Farmers which placed at the disposal of the writer the agricultural trustees (*fiduciari agrari*) of all the communes, and also circulated questionnaires on the subject.

The questions included chiefly refer to the average of the hail storms, to the " frazioni " of the communes most frequently affected by hail, to the extent of land affected, to the period of the year in which hail storms are most frequently reported, to the phenomena usually accompanying hail storms, the crops most frequently damaged; in addition the percentage of insured persons and the premiums charged by the insurance societies or companies.

Although this study (2) will be complete as regards the distribution of hail in time and in space, and as regards the losses caused by hail in Italy, it does not profess to go deeply into the scientific and technical aspect of the problems of the distribution of hail in relation to the physical geography of Italy, the losses caused to different crops, and hail insurance in relation to the different crops. These problems are in course of being studied respectively by Profs. Azzi, Briccoli and Rocchi of the Ecological Laboratory of the Agricultural Institute of Perugia.

The following are some official statistics relating to the activities of insurance societies operating this branch in Italy.

Premiums accepted in the course of 1933, including premiums passed on to the " Unione Italiana di Riassicurazione," were as follows:

Received by national insurance undertakings, 71,119,000 liras; by foreign undertakings, 3,624,000 liras. A total of 3,678,000 liras has been passed to the " Unione Nazionale di Riassicurazione " by the national insurance undertakings.

During the years 1930-32, a total of 124,451,000 liras in premiums was registered for 1930, of 84,012,000 liras for 1931 and 80,938,000 liras for 1932.

The statement given below shows the premiums chargeable to the different financial years for the period 1930-33, in other words the figures as determined by taking in account both the portions of premiums coming from the previous financial year and those relating to the succeeding year. The premiums are compared with the losses. The resulting ratio is of purely technical character and in reference to this, it should be noted that the figures shown do not include management costs and that the total premiums include purchase commissions as well arrears of premiums whether capable of collection or not.

---

(1) *Assicurazioni*. Rivista di diritto, economia e finanza delle assicurazioni private. Rome, Nov-Dec. 1935.

(2) P. BERNARD M. PAOLONI, circa una prossima pubblicazione sulla distribuzione e sui danni della grandine in Italia. *La Meteorologia Pratica*. Rivista di meteorologia e scienze affini. Perugia, September-December 1935, p. 244.

	1930 Liras	1931 Liras	1932 Liras	1933 Liras
Premiums relating to the financial year .	108,312,937	74,625,891	75,081,034	66,684,285
Losses.	119,552,220	42,047,570	80,079,745	86,384,237
Percentages	110.32 %	56.34 %	106.65 %	(1) 129.46 %

F. ARCOLEO.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

RIEUL PAISANT Marcel. La Commission Internationale d'Agriculture. Son rôle dans l'Economie Européenne. The C. I. A. Ed. Paris, 1936.

[M. le Marquis de Vogüé, who for the last 12 years has been and still is the President of the Commission Internationale d'Agriculture, in his foreword to the volume by Dr. Marcel Rieul Paisant on the origin and development of that institution, points to the steadily increasing importance of the role played by it in the field of the international organisation of agricultural interests.

The Marquis de Vogüé has been largely responsible for the success of a movement which started in 1889 and which in the course of its development has brought together to work for a common purpose the members of one of the most individualistic branches of human activity.

Dr. Paisant's pages are the demonstration of the wisdom of the policy of the Commission during nearly half a century of its existence. The writer was particularly well qualified to deal with this subject, as his association with the C. I. A. has been as long as it has been useful. In the 128 pages of his book Dr. Paisant summarises the contents of many a volume dealing with the part played by the international agricultural interests in the midst of the great agricultural crises of the last 50 years, such as the crisis brought about by the competition of new countries (1879-1896), the crisis of the reorganisation of the sales of agricultural products (1896-1914), the war crisis and the economic reconstruction that followed it (1914-1926) and lastly the crisis of overproduction since 1927. Several pages are dedicated to the international agricultural policy at the beginning of the year 1936, which, in the author's opinion, can be characterised as follows: "No autarchy, but rationalisation of production by the agriculturists themselves under the control of the State; international exchanges regulated through plurilateral conventions and direct bilateral agreements facilitated by a steadying of the value of money; lastly, a policy of absolute respect for the great moral principles which constitute the basis of civilisation itself." The regime of property and agricultural labour, agricultural production and sales, vocational organisation and co-operation of agriculturiscs, the teaching of agricultural science, agricultural statistics are the subjects treated with the greatest care and competency by Dr. Paisant. The last part of the book deals with the present organisation of the C. I. A. and its two special commissions: the Commission of Agricultural Co-operation and the Commission of Agricultural Labour. A brief account of the relations existing between the C. I A and the other great international bodies — the International Institute of Agriculture, the League of Nations and the International Labour Bureau—and a bibliography conclude Dr Plaisant's history of the C. I. A.1.

---

(1) Gli Istituti e le Imprese di assicurazioni in Italia, already quoted. Year 1934 and preceding years.

V. F.

UCKER Paul: Die italienische Agrarpolitik seit 1925, unter besonderer Berücksichtigung des Kampfes um das Getreide Schweizerische Beiträge zur Wirtschafts- und Sozialwissenschaft, II Aarau, H. R. Sauerländer & Co., 1935, pp. XX | 182.

This publication deals with the agricultural policy of the Italian Government since 1925 and the principles which have inspired it The author emphasizes the character of this policy by properly placing it in the general plan of the character and tendencies of the economic and social situation in Italy. In order to become fully acquainted with the actual status of the new organisation of Italian agriculture and get first hand information, the author visited Italy and put himself in touch with the most representative and best informed men in the field of his investigations. The main part of the work is dedicated to the integral land reclamation scheme and to the wheat policy of the Italian Government. As regards the latter the author mentions the economic and political circumstances which compelled the Italian Government to adopt a definite policy in order to insure the independence of the country in the provisioning of wheat. The means and method adopted for the attainment of this end and the results obtained are clearly and correctly stated

GUTIERREZ VALLADON V El Problema Mundial del Azúcar. Editorial Castro Madrid 1936. I Vol. pp. 230.

The author, the President of the Cuban Institute of Sugar Refineries, and chairman of various international delegations and conferences on sugar questions is well equipped to deal with this product of prime necessity, which has been severely affected by the upheavals of the great war and the following periods. All the economic measures which have been put forward to remedy the sugar crisis are here set out with the utmost clearness. The ten years of experiments and discussions which served to form this great volume of experience begin, in rhe work under review, in 1926 and conclude in 1935.

The writer simply claims to set out the facts in order that students may, in the light of experience, examine then, select from them and utilise them.

E. M. d. B.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Economy History.

LAPPE, J. Ein westfälischer Schulzenhof (Der Hof zu Kump im Kreise Unna). Ein Beitrag zur Sozial- und Wirtschaftsgeschichte des westfälischen Bauernstandes. Paderborn, F. Schöningh, 1935. 126 p. (Görres-Gesellschaft zur Pflege der Wissenschaft im katholischen Deutschland. Veröffentlichungen der Sektion für Sozial und Wirtschaftswissenschaft, 8. Hft.).

SAPPER, K. Geographie und Geschichte der indianischen Landwirtschaft. Hamburg, Ibero-amerikanisches Institut, 1936. 98 p. (Ibero-amerikanische Studien, hrsg. von HARRI MEIER, 1.).

TREWARTHA, G. A reconnaissance geography of Japan. Madison, University of Wisconsin, 1934. 283 p. (Wisconsin. University. Studies in the social sciences and history, nº 22.)

Sociology.

FOLKERTS, E. Oberbayrischer Bauern-Adel. 48 Bilder mit einem Vorwort. München, J. F. Lehmann, 1936, 7 p.

HOHENBRUCK, O. Die Verfassung des Tiroler Bauernstandes. Vereinsbuchhandlung und Buchdruckerei, 1936, 227 p.

SINGH, C. M. Rural India (Peasants' poverty, its causes and cure). Allahabad, Krishna Ram Mehta, 175 p.

Legislation.

WEISS, L. Die Abmeierung Leipzig, H. Buske, 1936. VI, 75 p (Würzburger staatswissenschaftliche Abhandlungen. Reihe B· Staatsrecht, Verwaltungsrecht und Ausserstaatliches Recht, hrsg., von W. LAFORET und E. WOLGAST. Hft. 4.)

WESSEL. Die Neufestsetzung des Altenteils im Schuldenregelungs-Verfahren. Berlin, Reichsnährstand Verlags-Ges., [1936]. 64 p.

Statistics.

NICEFORO, A. Introduzione allo studio della statistica economica. Nuova ed. ampliata. Messina, G. Principato, 1934. 389 p.

Rural Economics.

ANTONELLI, G. Economia rurale ad uso degli Istituti tecnici agrari e per geometri professionisti e agricoltori. Firenze, Ofiria, [1936]. XIV, 459 p.

JACQUEMYNS, G. La politique rurale de l'Italie fasciste. Bruxelles, Falk, 1936. 160 p. (Université libre de Bruxelles. Institut de sociologie Solvay. Études sociales).

MELLINGHOFF, W. Untersuchung über die landwirtschaftlichen Besitz- und Betriebsgrössen im Kreise Goslar. Berlin, P. Funk, [1930]. X, 100 p.

RUTGERS UNIVERSITY, NEW BRUNSWICK, NEW JERSEY. INSTITUTE OF RURAL ECONOMICS. Viewpoints on economic and social issues and their relation to rural life, 1935. Lectures and discussions. [New Brunswick, New Jersey, 1935].

Internal Land Settlement.

MACKINTOSH, W. A. Prairie settlement. The geographical setting Toronto, MacMillan c° of Canada, 1934. XV, 212 p. (Canadian frontiers of settlement, edited by W. A MACKINTOSH and W. L. G. JOERG. v. 1).

Co-operation.

VERBAND LAENDLICHER GENOSSENSCHAFTEN IN NIEDERÖSTERREICH. Jahresbericht, 1935. Wien, Selbstverlag, 1936. [Pages pas numérotées].

Industries.

GUTIÉRREZ V. V El problema mundial del azúcar. Madrid, Castro, 1936. 237 p.

VON LAER, W. Massenberechnungstafeln fur Holzvorratsaufnahmen (Formhöhen-, Kreisflächen- und Massenmultiplikationstafeln). Nach den Grundner-Schwappach' schen Massentafeln bearbeitet Berlin, P. Parey, 1936. 79 p.

PALAZZO, F. C Cellulose greggie e nobili da materie prime nazionali. Firenze, Tip. M. Ricci, 1935. VIII, 254 p (R. Istituto superiore agrario e forestale. Laboratorio di chimica).

PALAZZO, F. C. Le trementine italiane Dieci anni di esperimenti in materia di resinazione Firenze, Tip. Giuntina, 1936. (R. Istituto superiore agrario e forestale).

[GREAT BRITAIN]. DEPARTMENT OF OVERSEAS TRADE. Report of the British economic mission to the Far East, 1930-31. London, H. M. Stationery office, 1931, 156 p.

PALESTINE. DEPARTMENT OF CUSTOMS, EXCISE AND TRADE. Customs tariff ordinance, 1927-1936 and Customs duties exemption ordinance, 1924. (Corrected up to the 15th April 1936). [Haifa], 1936. 47 p. (Special supplement to the Palestine commercial bulletin of April, 1936).

Various.

ACADEMIA ESPAÑOLA, MADRID. Prontuario de ortografia de la lengua española en preguntas y respuestas. 31ª ed. [Madrid], Espasa-Calpe, 1936. 76 p.

ANNUARIO GENERALE DELLA LIBIA. Anni 4° e 5°. 1935. 1936-37. Tripoli, [Unione Coloniale Italiana Pubblicità ed Informazioni], 1935. 1936. 2 vols.

IX Congrès international de chimie pure et appliquée. Madrid, 5-11 avril 1934. v. 5, 6, 7 Madrid, Bermejo, [1936] 3 vols
v. 5: Chimie biologique pure et appliquée, v. 6 Chimie analytique; v. 7: Chimie agricole

Ordinamenti e gerarchie d'Italia Annuario amministrativo, corporativo, economico d'Italia e Colonie per l'anno XIV 1936. Milano, Ravagnati, 6 5 p.

Wheeler-Bennett, J W and Heald, S Documents on international affairs 1935. v 1. London, Oxford University press, 1936 318 p.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

PRODUCTION AND CONSUMPTION OF AND EXTERNAL TRADE IN MEAT IN FRANCE (*Concluded*)

III. — Course of Foreign Trade, Exports and Imports.

Before the war, France had a somewhat active live stock and meat export trade, relating mainly to selected breeding animals, bullocks, calves and beef and veal sent to Switzerland and Italy; from that time a tendency began to be observed towards reduction of live animals in favour of an increase of slaughtering products. France imported small quantities of beef and veal (mainly in the form of tinned meats and live animals from Algeria), some pigmeat (hams, bacon, sausages from the United States, England and Germany, as well as a certain quantity of live pigs from the Netherlands), the volume decreasing with the development of the national live stock; finally a large and increasing quantity of live sheep coming almost exclusively from Algeria.

In all the value of the meat imports in 1913, reckoning the animal fats, amounted to 107,000,000 gold francs, more than 40,000,000 of which were paid to Algeria; exports represented a value of 95,000,000 and the trade was balanced by a small deficit of 12,000,000 gold francs.

As appears from Table VI in the post-war years there was some reduction of exports in consequence of the condition of the live stock which was in course of reconstitution; the exports were mainly beef and veal, fresh or preserved and salted pigmeat for the Saar, Germany, Belgium; they were later reduced from 1924 to 1927 to a very small volume, affected by the rise in cost price of the production of French live stock.

So as to ensure, in view of the position of national production, the home consumption, a fairly high rate of importation was maintained, equal to and even greater than that of 1911-1913; importation was moreover stimulated by a very marked rise of prices of meat on the home market, which brought about a still greater rise of imported meat prices. In 1926 and 1927 importation was at its highest, while exports fell to their lowest level; the deficit of the trade balance, calculated as above, was nearly 800,000,000 paper francs in 1925 and 1926 (765,000,000 and 784,000,000 respectively), in 1927 it was nearly 1,100,000,000 equivalent to 200,000,000 gold francs, seventeeen times as large as the pre-war figure.

In 1928 and 1929, trade movements underwent a radical change the cause of which may be found, at least in part, in the fall of beef and veal prices on

TABLE VI. — *Exports of*

	1935	1934	1933	1932	1931	1930	1929
	LIVE ANIMALS (thousands of head)						
Cattle							
Bullocks	0.6	0.7	0.1	0.2	2.3	7.7	32.2
Cows	7.9	7.1	2.5	1.7	2.7	9.3	30.7
Bulls	0.2	0.1	0.1	(1)	(1) —	1.4	7.8
Young bullocks and young bulls	0.2	0.4	0.1	0.2	0.1	8.2	41.0
Heifers	0.2	0.4	0.1	0.1	0.3	5.4	28.6
Calves	1.9	0.7	0.1	0.1	0.1	11.0	21.5
Sheep							
Ewes and wethers	0.8	0.7	0.5	0.7	0.8	1.1	1.4
Lambs	0.2	1.1	0.4	0.6	1.6	7.5	0.4
Pigs							
Pigs	4.6	3.4	(1)	0.1	0.4	0.4	1.0
Sucking pigs	0.3	1.8	0.1	(1) —	0.2	0.2	1.1
	MEAT (thousands of quintals)						
Beef (1)							
Fresh or chilled meat	16.9	12.5	11.5	4.9	12.6	27.9	42.2
Salt meat or raw meat in brine or unprepared meat	0.2	0.3	0.1	0.3	0.5	1.1	1.0
Tinned meat	19.0	20.2	19.0	19.0	20.4	21.7	23.8
Total	*36.1*	*32.7*	*30.6*	*30.2*	*33.5*	*50.7*	*67.0*
Mutton							
Fresh or chilled meat	0.5	*0.1*	0.9	*1.7*	*2.0*	0.6	0.6
Pork							
Fresh or chilled	4.3	0.4	0.1	0.2	0.4	0.3	0.3
Salted meat (hams etc.)	8.1	4.2	2.8	2.7	3.2	4.7	5.4
Sausages etc.	22.7	20.0	12.2	19.2	9.8	11.4	9.2
Total	*35.1*	*24.5*	*15.1*	*22.1*	*13.4*	*16.4*	*14.9*
General total	*71.3*	*57.4*	*46.6*	*54.4*	*39*	*68*	*82*

---

(1) Including "other" meats

live animals and meat.

1928	1927	1926	1925	1924	1923	1920	Average			Pre-war period	
							1929–1933	1924–1928	1920–1923	1913	1911
LIVE ANIMALS (thousands of head)											
29.8	8.9	1.9	0.5	4.9	22.4	3.6	8.5	9.2	9.4	40.2	47.7
21.2	7.6	2.8	1.8	12.2	35.2	4.9	3.4	9.1	15.1	13.7	28.1
9.6	0.5	0.1	0.2	1.3	3.9	0.2	1.9	2.1	9.4	3.1	6.7
44.2	20.5	1.2	(1) —	0.1	4.5	(1) —	1.9	1.3	1.3	0.2	0.5
21.0	5.5	0.3	0.1	0.7	5.0	0.4	6.9	9.5	29.6	0.6	1.7
30.8	12.6	0.1	0.1	3.9	12.7	2.1	6.6	9.5	7.6	16.9	85.5
6.1	7.4	0.8	0.4	1.5	9.0	5.6	0.7	3.2	6.4	23.6	11.1
2.0	2.1	(1) —	0.2	(1) —	0.7	0.1	2.1	0.9	0.7	32.9	34.3
3.8	0.1	6.2	15.4	7.9	37.2	31.1	0.4	6.7	34.0	47.2	29.8
0.5	0.5	32.4	108.2	4.8	15.4	1.4	0.3	29.3	—	3.3	3.5
MEAT (thousands of quintals)											
53.9	52.2	15.9	46.4	2.7	116.0	34.5	19.8	34.2	57.4	55.4	30.8
1.4	0.8	1.1	1.1	2.7	2.3	8.2	0.6	1.4	6.7	1.6	1.4
17.2	10.7	10.3	11.8	20.7	77.7	116.7	20.8	14.1	102.6	25.0	17.4
72.5	*63.7*	*26.3*	*59.3*	*26.1*	*196.0*	*159.4*	*41.2*	*49.7*	*166.7*	*82.0*	*40.6*
1.4	*1.2*	*0.7*	*0.9*	*1.1*	*3.7*	*4.5*	*1.2*	*1.1*	*2.6*	*1.8*	*1.3*
0.5	0.3	0.2	0.2	2.3	1.5	1.8	0.3	0.7	2.3	0.7	0.7
12.5	14.9	14.1	11.3	11.8	10.7	95.8	3.6	12.9	31.8	9.8	8.8
22.2	18.3	15.1	15.2	22.6	18.2	8.2	14.4	18.7	13.3	6.1	4.7
35.2	*43.5*	*29.4*	*26.7*	*36.7*	*30.4*	*105.8*	*18.3*	*32.3*	*47.4*	*16.6*	*14.2*
109	*108*	*56*	*87*	*74*	*230*	*270*	*61*	*83*	*217*	*100*	*65.9*

TABLE VII. — *Imports of*

	1935	1934	1933	1932	1931	1930	1929
			LIVE ANIMALS: (thousands of head)				
Cattle:							
Bullocks	0.7	3.0	7.9	11.9	71.7	24.8	0.1
Cows	2.1	3.2	9.2	13.1	28.4	18.8	0.5
Bulls	0.5	0.7	2.7	7.8	9.7	5.0	0.2
Young bullocks and young bulls	(1) —	(1) —	0.3	0.4	1.9	0.6	0.5
Heifers	0.1	0.3	1.8	7.5	40.1	7.8	1.0
Calves	1.4	0.9	4.8	6.6	24.8	7.3	0.4
Sheep:							
Ewes, rams and wethers	869	786	791	763	914	1,218	646
Lambs of 10 kg. and under	0.5	2.5	0.7	5.9	1.0	0.5	0.1
Pigs:							
Pigs	31.6	81.2	161.1	187.1	498.5	297.8	37.1
Sucking pigs	(1) —	0.5	14.7	10.6	19.2	36.6	0.7
			MEAT: (thousands of quintals)				
Beef and veal (2):							
Fresh or chilled	1.4	3.1	6.9	17.0	90.9	17.2	7.4
Frozen	114.3	149.5	207.8	272.1	522.4	364.0	122.5
Prepared (salted, prepared or preserved in tins)	51.0	56.3	50.1	52.8	74.3	53.8	44.6
Total	*166.7*	*208.9*	*264.8*	*341.9*	*687.6*	*435.0*	*174.5*
Mutton and lamb:							
Fresh or chilled	38.4	29.6	28.1	33.8	78.5	57.8	37.3
Frozen	41.2	66.1	62.1	61.0	111.1	79.7	59.2
Total	*79.6*	*85.7*	*90.2*	*94.8*	*189.6*	*135.5*	*96.5*
Pigmeat:							
Fresh or chilled	5.3	15.3	52.6	68.4	213.1	197.5	36.8
Frozen	7.7	11.0	28.0	18.2	81.1	34.9	67.9
Salted (hams, salted fat pork, etc.)	8.6	12.5	24.6	26.6	43.4	42.4	30.1
Other types of pigmeat	7.8	9.3	15.6	24.0	28.8	17.8	10.5
Preserved in tins	3.2	3.3	9.7	13.9	28.0	17.5	5.7
Total	*32.6*	*58.4*	*130.5*	*151.1*	*394.4*	*310.1*	*151.0*
General total	*279*	*346*	*485*	*588*	*1,270*	*872*	*422*

(1) Under 50 quintals. — (2) Includes "other" meat. — (3) Including preserved pigmeat. — (4) The

live and slaughtered animals.

LIVE ANIMALS: (thousands of head)

1928	1927	1926	1925	1924	1922	1920	Averages 1929-1933	Averages 1920-1923	Averages 1924 1928	Pre-war 1913	Pre-war 1911
0.1	0.3	2.9	10.1	10.7	46.5	9.4	21.3	4.8	22.2	5.0	19.2
0.4	1.7	4.1	4.3	0.7	25.2	7.6	14.0	2.2	11.1	3.2	2.8
0.2	0.3	0.3	0.9	0.3	6.0	0.6	5.2	0.4	2.1	0.5	0.3
0.2	0.6	0.2	0.3	0.1	0.8	0.3	0.7	0.3	0.7	0.5	0.1
0.6	5.0	14.1	3.2	0.1	15.9	6.6	11.6	4.6	7.6	1.8	0.5
0.2	2.7	1.5	3.0	0.3	63.3	11.8	8.8	1.5	19.8	6.7	1.9
633	702	1,245	1,191	1,038	1,106.8	878.7	866.4	761.8	483.3	1,289.3	969.8
0.2	1.2	1.1	1.1	0.6	2.1	3.2	2.8	0.8	1.4	1.6	0.8
100.0	102.5	51.3	24.8	30.0	206.9	93.7	236.3	51.7	96.8	2.3	1.0
40.2	65.3	2.9	0.3 (1)	—	0.2	0.8	16.4	21.7	0.7	—	—

MEAT: (thousands of quintals)

1928	1927	1926	1925	1924	1922	1920	Averages 1929-1933	Averages 1920-1923	Averages 1924 1928	Pre-war 1913	Pre-war 1911
12.9	544.4	646.6	960.1	905.0	355.4	1,331.8	27.9	633.9	556.6	23.1	25.0
99.7							297.7				
(3) 53.8	(3) 56.7	(3) 92.3	(3) 85.7	(3) 134.2	(3) 46.2	(3) 145.0	66.1	(3) 88.5	(3) 82.6	30.0	17.3
(3) *160.7*	(3) *600.0*	(3) *720.0*	*1,040.0*	(3) *1,020.0*	(3) *390.0*	(3) *1,570.0*	*381.7*	(3) *710.0*	(3) *630.0*	*50.0*	*40.0*
26.6	135.3	92.5	107.7	111.0	65.2	160.8	47.0	83.3	84.6	4.4	2.8
43.2							54.6				
69.8	*135.3*	*92.5*	*107.7*	*111.0*	*65.2*	*160.8*	*101.6*	*83.3*	*84.6*	*4.4*	*2.8*
274.5	454.6	89.5	74.0	350.1	120.1	30.9	113.7	243.1	77.1	4.3	61.0
45.6							46.0				
(4) 17.4	(4) 62.5	(4) 49.3	(4) 59.8	(4) 160.9	(4) 53.3	(4) 373.7	33.4	(4) 69.9	(4) 173.5	(4) 56.8	(4) 82.1
(4) 2.8	(4) 13.5	(4) 6.7	(4) 15.9	(4) 17.1	(4) 24.8	(4) 6.0	17.3	11.2	(4) 12.0	(4) 10.2	(4) 7.9
(4) —	(4) —	(4) —	(4) —	(4) —	(4) —	(4) —	15.0	(4) —	(4) —	(4) —	(4) —
330.0	(4) *540.0*	(4) *150.0*	(4) *160.0*	(4) *550.0*	(4) *200.0*	(4) *420.0*	*225.4*	*350.0*	(4) *270.0*	(4) *80.0*	(4) *160.0*
560.0	*1,280.0*	*960.0*	*1,310.0*	*1,660.0*	*640.0*	*2,070.0*	*709.0*	*1,140.0*	*980.0*	*130.0*	*200.0*

---

customs nomenclature does not differentiate between preserved pigmeat and certain prepared meats.

TABLE VIII. — *Net Imports* (+) *or Net Exports* (—)

	1935	1934	1933	1931	1929	1928
	1. LIVE ANIMALS (thousands of head)					
Full-grown cattle	— 5.8	— 1.5	+ 19.0	+ 146.1	— 138.0	— 124.3
Calves	— 0.5	+ 0.2	+ 4.7	+ 24.7	— 21.1	— 30.6
Sheep	+ 868	+ 780	+ 790	+ 766	+ 644	+ 625
Young pigs of 6 months and over	+ 27	+ 78	+ 161	+ 498	+ 36	+ 96
Sucking pigs	— 0.3	+ 6.7	+ 13.6	+ 19.0	— 0.4	+ 39.5
Horses for slaughter	—	—	+ 15.2	+ 55.3	+ 4.0	+ 3.1
	LIVE WEIGHT (thousands of quintals)					
Full-grown cattle	— 23	— 15	+ 90	+ 699	+ 414	— 469
Calves	— 1	—	+ 3	+ 21	— 26	— 38
Sheep	+ 328	+ 298	+ 301	+ 353	+ 245	+ 238
Pigs	+ 25	+ 79	+ 142	+ 415	+ 32	+ 96
Horses for slaughter	+ 31	+ 37	+ 76	+ 277	+ 20	+ 15
Total	+ *350*	+ *420*	+ *610*	+ *1,760*	— *150*	— *160*
	2. MEAT (thousands of quintals)					
Beef and veal	+ 131	+ 176	+ 234	+ 654	+ 107	+ 88
Mutton and lamb	+ 80	+ 86	+ 90	+ 188	+ 96	+ 68
Pigmeat	—	+ 27	+ 115	+ 331	+ 136	+ 295
Total	+ *211*	+ *289*	+ *439*	+ *1,173*	+ *339*	+ *451*

of live and slaughtered animals.

1925	1924	1923	1922	1920	Averages			Pre war	
					1929 1933	1924 1923	1920 1923	1913	1911
1. LIVE ANIMALS (thousands of head)									
+ 16 2	— 7 3	— 46 2	+ 64 3	+ 15 4	+ 29 4	— 19 9	+ 13 8	— 46 8	— 41 8
+ 2 9	— 3 6	— 2 3	+ 59 4	+ 9 7	+ 2 2	— 8 0	+ 12 0	— 10 2	— 83 6
+ 1,191	+ 1,035	+ 1,189	+ 1,102	+ 876	+ 864	+ 758	+ 1,049	+ 1,224	+ 925
+ 9	+ 22	+ 39	+ 170	+ 62	+ 236	+ 45	+ 63	— 10	+ 188
— 47 9	— 4 8	..	..	.	+ 16 1	— 7 6	..	— 1	— 2 5
+ 8 0	—	+ 2 6	+ 2 1	+ 2 3	+ 24 9	—	+ 1 7	..	...
LIVE WEIGHT (thousands of quintals)									
+ 59	— 50	— 27	+ 352	+ 60	+ 16	+ 83	+ 129	— 235	— 81
+ 2	— 4	— 7	+ 47	+ 12	— 1	+ 6	+ 15	— 6	— 61
+ 455	+ 393	+ 445	+ 424	+ 351	+ 331	+ 366	+ 408	+ 471	+ 364
+ 15	+ 18	+ 20	+ 150	+ 94	+ 200	+ 54	+ 73	+ 15	+ 195
+ 40	+ 27	+ 13	+ 10	+ 11	+ 125	+ 19	+ 8	...	...
+ *560*	+ *380*	+ *440*	+ *980*	+ *530*	+ *670*	+ *528*	+ *633*	+ *245*	+ *217*
2 MEAT (thousands of quintals)									
+ 980	+ 990	+ 440	+ 130	+ 1,360	+ 341	+ 660	+ 470	— 30	— 10
+ 110	+ 109	+ 90	+ 60	+ 160	+ 100	+ 80	+ 80	+ 3	+ 1
+ 130	+ 510	+ 370	+ 170	+ 310	+ 207	+ 230	+ 230	+ 60	+ 150
+ *1,220*	+ *1,610*	+ *900*	+ *360*	+ *1,830*	+ *648*	+ *1,060*	+ *780*	+ *90*	+ *160*

TABLE IX. — *Influence of Foreign Trade on National Meat Production.*

	1935	1933	1931	1929	Average 1929-1933	1927
	Thousands of quintals					
Beef and veal						
Consumption	9,660	9,220	8,230	9,170	8,780	8,490
Imported meat net (1)	+ 130	+ 230	+ 650	+ 110	+ 340	+ 540
Live animals imported (+) or exported (–) net (2)	— 10	+ 50	+ 110	— 250	+ 10	— 80
Net supplies drawn from the national live stock	*9,540*	*8,940*	*7,480*	*9,310*	*8,430*	*8,030*
Mutton and lamb						
Consumption	940	970	870	990	950	1,140
Slaughtered meat imported, net	+ 80	+ 90	+ 190	+ 100	+ 100	+ 130
Live animals imported (+) (1) or exported (—) net (2)	+ 160	+ 150	+ 180	+ 120	+ 170	+ 130
Net supplies drawn from the national live stock	*700*	*730*	*500*	*770*	*780*	*880*
Pig meats·						
Consumption	4,170	3,600	3,760	3,140	3,510	2,960
Slaughtered meat imported, net (1)	—	+ 110	+ 330	+ 140	+ 200	+ 500
Live animals imported (+) or exported (–) net	+ 20	+ 140	+ 210	+ 30	+ 180	+ 80
Net supplies drawn from the national live stock	*4,150*	*3,350*	*3,220*	*2,970*	*3,130*	*2,380*
Total quantities						
Consumption (3)·	14,770	13,880	13,050	13,400	13,360	12,590
Imported slaughtered meat, net	+ 210	+ 440	+1,200	+ 340	+ 650	+ 1,170
Live animals imported (+) or exported (—) net (2)	+ 170	+ 340	+1,170	— 100	+ 360	+ 130
Net supplies drawn from the national live stock	14,390	13,100	10,680	13,260	12,350	11,290

(1) Including preserved meat. — (2) Live weight changed into net weight, at approximate coefficients of 60 % for cattle, 50 % for sheep, 90 % for pigs. — (3) Does not include horse flesh.

the home market in 1928, followed by a still more marked decline in the wholesale prices of imports in 1929; exports of cattle and of meat more than trebled and the importation was reduced to nearly one fourth of the 1927 volume. The determining effect of the price fall on this movement may be the more easily perceived since, at the same time, the rise in pig prices was followed by a reduction of exports and an increased importation of this kind of meat. The deficit of the trade balance was reduced in 1929 to 180,000,000 paper francs, equivalent to 36,000,000 gold francs; or 17 per cent. of the 1927 figure.

From 1929 onwards, the internal trade movements once again followed the two inverse tendencies noted above, in direct relation with the conditions of the home market; price rise in 1929 and 1930, very marked decline subsequently. In 1931 exports fell to the lowest level registered since the war, imports rose considerably and the deficit of the trade balance attained 1,700,000,000 paper francs. From 1932 to 1935 the volume of exports remained small, but there was a fairly well marked gradual recovery in 1935, especially for cattle, pigs and pigmeats; there was a considerable continuous decline in imports, as the application of a policy of protection of the home market had come to accentuate and accelerate the natural effect of the price fall, to an almost unprecedented extent. In 1935, the trade balance showed a slight credit balance of 90,000,000 paper francs.

From the above table (Table IX) a very fairly precise idea may be gained of the influence, which the variations in foreign trade movements have had on the home production of meat, the figures shown being based on approximate but sufficiently indicative calculations.

It is quite clear that not all the live stock imported goes directly into consumption, although that is the most usual destination, but whether it is slaughtered immediately or goes to swell the herd numbers, the effect is always that of reducing the net quantity drawn from the national live stock for consumption. The following proportional index figures, show the relative importance of the supplies from abroad as compared with the consumption making it possible to estimate this direct or indirect influence: (net imports +, net exports —):

	1935	1933	1932	1929	Average 1929-1933	1927
			(Percentages)			
Beef and veal:						
Supplies of meat	+ 1.4	+ 2.5	+ 7.9	+ 1.2	+ 3.9	+ 6.4
Supplies of live cattle . .	— 0.1	+ 0.6	+ 2.3	— 2.9	+ 0.1	+ 0.2
Total . . .	+ *1.2*	+ *3.1*	+ *10.2*	— *1.5*	+ *4.0*	+ *6.8*
Mutton and lamb:—						
Supplies of meat	+ 8.5	+ 9.3	+ 20.8	+ 10.1	+ 10.5	+ 11.4
Supplies of live sheep . .	+ 17.0	+ 15.4	+ 21.7	+ 12.1	+ 17.9	+ 10.5
Total . . .	+ *25.5*	+ *24.7*	+ *42.5*	+ *22.2*	+ *28.4*	+ *21.9*
Pigmeat:						
Supplies of meat	—	+ 3.1	+ 8.8	+ 4.4	+ 5.7	+ 16.9
Supplies of live pigs . . .	+ 0.5	+ 3.8	+ 5.8	+ 1.0	+ 5.1	+ 2.7
Total . . .	+ *0.5*	+ *6.9*	+ *14.6*	+ *5.4*	+ *10.8*	+ *19.6*
All meat:						
Supplies of meat	+ 1.4	+ 3.1	+ 8.8	+ 2.4	+ 4.7	+ 9.0
Supplies of live animals .	+ 1.1	+ 2.3	+ 8.6	— 0.7	+ 2.6	+ 1.8
General total . . .	+ *2.5*	+ *5.4*	+ *17.4*	+ *1.8*	+ *7.3*	+ *10.8*

The fluctuations of foreign trade take place in the same sense as the variations in consumption, because they are due to the same cause, the price fluctuations; they accentuate the effect on the national production, or to speak more exactly, on the quantity of home-produced meat placed yearly on the market. This may be seen from the following index figures, which indicate the proportional variations in consumption and those in the net supplies drawn from the national live stock:—

	1934-35 as compared with average of 1929-1935	As compared with 1927				Average
		1935	1933	1931	1929	1929-1935
Beef and veal:						
Consumption	110	114	108.5	98	108	103.5
Net supplies from national live stock	113	120	112.5	94.5	117.5	106.5
Mutton and lamb						
Consumption	87.5	82.5	98.5	93	95.5	93
Net supplies from national live stock	90	79.5	84	57	87.5	88.5
Pigmeats.						
Consumption	118.5	141	121.5	102.5	106	118.5
Net supplies from national live stock	132.5	174.5	141	135.5	125	131.5
All meats:						
Consumption	109.5	117.5	111	105	107	110
Net supplies from national live stock	115.5	118	117.5	96	118	111

IV. — The Crisis in Meat Production and the Measures Taken with a view to Overcoming it.

The comparatively wide variations in the meat consumption and in the net supplies from abroad, as shown above, could not fail to have perceptible effects on the home market and on the live stock industry itself. These have already been indicated and it has also been noted that the chief direct cause of these variations is to be found in the frequent fluctuations of an extent marked by the prices of meat on the home market.

Due in part to general economic conditions, these fluctuations represent, in any case, a want of reciprocal adaptation between consumption and the foreign supplies on the one hand, and between consumption and the production of meat, in terms of the animals actually bred, on the other. In other words there is a want of equilibrium in the position of live stock farming. The years 1930 and 1931 marked the most acute stage of this want of equilibrium, owing to the marked decrease in the volume of supplies drawn from the national

TABLE X. — *Variations in Price on the Villette Market, Paris.* *2nd Quality Meat.*

	1935	1934	1933	1932	1931	1930	1929	Average 1929-1933
	Francs per kg. of meat net weight							
Bullocks	4.78	5.17	5.56	6.81	9.26	10.25	8.72	8.22
Cows	4.38	4.59	5.14	6.39	8.90	10.11	8.44	7.80
Bulls	3.85	4.07	4.71	5.61	8.03	9.45	7.78	5.12
Calves	7.16	7.68	8.86	9.21	11.90	13.52	12.77	11.25
Sheep	10.17	11.24	10.83	10.58	13.46	14.81	14.28	12.79
Pigs	5.35	6.25	9.21	9.32	8.46	11.15	11.85	9.99

	1928	1927	1926	1925	1924	Average 1924-1928
	Francs per kg. of meat net weight					
Bullocks	7.21	8.04	8.49	7.72	7.42	7.78
Cows	6.84	7.55	8.22	7.65	7.18	7.49
Bulls	6.28	6.93	7.41	7.00	6.63	6.85
Calves	10.48	10.64	11.48	10.52	9.85	10.59
Sheep	12.12	11.97	11.47	10.87	10.56	11.40
Pigs	10.29	10.55	10.35	8.70	8.33	9.64

	1922	1920	1913	1910	1905
	Francs per kg. of meat net weight				
Bullocks	5.07	7.84	1.78	1.70	1.51
Cows	4.73	7.86	1.63	1.56	1.33
Bulls	4.25	7.16	1.41	1.35	1.20
Calves	6.73	11.00	2.33	2.04	1.81
Sheep	8.25	11.96	2.27	2.04	1.97
Pigs , ...	7.00	10.60	1.80	1.57	1.28

live stock, in its turn due to the rise of prices on the market, while, under the influence of this same rise, there was inevitably a larger production of animals.

The consequence was a very marked fall in market prices of meat which lasted through the subsequent years. The extent and duration of this phenomenon clearly form the index of a serious crisis in French live stock breeding for meat production.

It will be seen that the trend of prices is not the same for the different kinds of meat. Keeping to recent years, the indices of variations are as follows:

	1935 in relation to			1934 in relation to 1932	1932 in relation to 1930	1930 in relation to 1928	1928 in relation to 1926	1926 in relation to 1924	Average 1929 1933 in relation to 1924-1298
	1934	1930	1929						
					Percentage				
Beef	— 7 5	— 53 4	— 33 7	— 24 5	— 33 6	+ 12 2	- 15 1	+ 14 4	+ 5 7
Veal	— 6.8	— 47 0	— 31 7	— 16 4	— 31 9	+ 29 0	— 8 7	+ 16 7	+ 6 2
Mutton . .	— 9 5	— 32 0	— 16 8	+ 5 2	28 6	+ 22 2	+ 4 8	+ 8 6	+ 12 2
Pork . . .	— 14 4	— 52 0	— 48 0	— 32 9	(1) 21 3	(2) 15 2	- 0 6	+ 18 3	+ 3 6

(1) Compared with 1929 16 4 % only in relation to 1930 (2) In 1929 8 % only in 1930

Very noticeable changes have thus occurred in the relative price of the different kinds of meat. Taking as basis of comparison the price of beef, the price of the other kinds of meat may be stated as follows:

	1935	1934	1933	1931	1929	1926
			Price of beef	100		
Veal	—	150 0	159 5	128 5	146 5	135 0
Mutton	192 0	217 0	206 5	143 5	182 5	135 0
Pork.	105 5	122 0	169 0	91 5	136 0	132 0

	1924	Average 1929-1933	Average 1924 1929	1922	1920	1913
			Price of beef = 100			
Veal	137 5	137 0	136 0	132.5	140 5	131 0
Mutton	142 0	155 5	146.5	162 5	152.5	128 5
Pork, ...	182 5	121 5	124 0	135 0	132 5	101 0

Relatively to the price of beef, the prices of the other kinds of meat have been less during the years of low consumption, but although this observation holds good absolutely for pork the index figure of which has returned almost exactly to what it was before the war, it should be noted, on the other hand, that except for the years as indicated, the prices of veal and of mutton have risen on the whole as compared with beef prices.

These observations confirm the conclusion already drawn from the examination of the changes in live stock numbers, *viz.*, that the crisis of over-production is especially marked in the pig production, and this in spite of a large increase in consumption. Mutton prices were especially influenced by the under-consumption recorded in 1931, but the decline followed that of the prices of other meats only at a certain distance, and it would be paradoxical to speak of over-production when the numbers of sheep have continuously diminished. The market for beef is the one which has beeen the most liable to fluctuations in the demand and for this market the disequilibrium noted above was the most serious and the most difficult to remedy, by reason of the character of this branch of live stock farming; the over-production is more noticeable in respect of calves than in that of bullocks and full grown cattle.

A further fact may be noted: the extent of the price decline becomes accentuated as the product is traced back from the consumer to the producer.

First stage: retail sale in the butchers' shops, wholesale sale on the Villette market. As compared with the average of 1930, the decline on the market was, in 1934, for beef 50 per cent., for veal 43 per cent., for mutton 25 per cent., and for pork 44 per cent. For the retail trade the decline in the same year was only from 31 to 38 per cent. for beef, 23 per cent. for veal, 13 per cent. for mutton, 32 to 34 per cent. for pork. Taking it as whole and establishing a kind of proportion of the quantities of the different kinds of butchers' meat, the decline was 45 per cent. on the market and 25 per cent. in the retail trade. The 1934 index as compared with that of 1914 was 110 for the retail sale, 85 at the production stage for butchers' imeat, and for pork the difference was greater.

Taking the second stage of production, the wholesale market, a similar marginal difference is observed, although less accentuated at least for cattle. At the time when the average market price of cattle in the sixteen main stock farming regions in November-December 1934 was 43.3 per cent. lower than the prices at the end of 1931, the decline on the Villette market was only 39.2 per cent.

Summarising it may be said that the price fall of meat at the retail stage was half what it was at the production stage in the stock farming regions.

REGULATION OF IMPORTS.

From 1927 the Government raised the duties on live animals and meat, in order to bring them into relation with the value of the currency and the situation on the home market. The duties were again raised in 1929, then in 1930 by the law of 19 March the Government obtained powers to raise these duties by decree without recourse to a preliminary vote of Parliament; this power was used for pigs and pigmeat.

The incidence of these customs duties may be seen by comparing a number of import charges, such as were established by the Commission of customs values.

TABLE XI. — *Import Duties on Animals and Meat* (*).

Classification		1st January							
		1926	1928	1930	1931	1932	1933	1934	1935
		Paper francs per quintal							
LIVE ANIMALS									
Calves	(*a*)	30 00	120 00	200 00	200.00	200.00	200.00	200.00	300.00
	(*b*)	20.00	80.00	100.00	100.00	100.00	100.00	100.00	150.00
	(*c*)	—	—	—	—	—	—	50.00	—
Cattle, other	(*a*)	40.00	160.00	250.00	250.00	250.00	250.00	250.00	380.00
	(*b*)	25.00	100 00	125.00	125.00	125 00	125.00	125.00	190.00
	(*c*)	—	—	—	—	—	—	50.00	—
Sheep, other than lambs	(*a*)	40.00	160 00	250.00	250.00	250 00	250.00	250.00	380.00
	(*b*)	25.00	100.00	125 00	125 00	125.00	125.00	125 00	190.00
	(*c*)	—	—	—	—	—	—	50.00	—
Young pigs, per head	(*a*)	4 00	16.00	22 50	30 00	45.00	45.00	45 00	65.00
	(*b*)	2 25	9.00	11.25	15.00	22.50	22.50	22.50	32.50
	(*c*)	—	—	—	—	—	—	10.00	—
Pigs, other	(*a*)	25.00	100 00	150.00	200.00	300.00	300.00	300.00	450.00
	(*b*)	15.00	60 00	75.00	100 00	150 00	150.00	150.00	225.00
	(*c*)	—	—	—	—	—	—	75.00	—
MEAT.									
Fresh beef and mutton	(*a*)	50.00	180.00	350.00	350 00	350.00	350.00	350.00	520.00
	(*b*)	35.00	126.00	175 00	175 00	175 00	175.00	175.00	260.00
	(*c*)	—	—	—	—	—	—	100.00	15.00
Frozen beef and mutton	(*a*)	50 00	85.00	180 00	180 00	180 00	180.00	180.00	270.00
	(*b*)	35.00	59.50	90.00	90 00	90.00	90.00	90.00	135 00
	(*c*)	—	—	—	—	—	—	100.00	55.00
Fresh pork	(*a*)	40 00	144.00	250 00	350.00	500.00	500.00	500.00	750.00
	(*b*)	25.00	90 00	125.00	175 00	250.00	250 00	250.00	375 00
	(*c*)	—	—	—	—	—	—	100.00	—
Frozen pork	(*a*)	40.00	85 00	130.00	250.00	260.00	260.00	260.00	400.00
	(*b*)	25.00	59.50	65.00	125.00	130.00	130.00	130.00	200.00
	(*c*)	—	—	—	—	—	—	100.00	30.00
Hydrogenized tallow for soap making	(*a*)	0 00	0 00	20.00	20.00	20.00	20.00	60 00	60.00
	(*b*)	0.00	0 00	10.00	10.00	10.00	10.00	30.00	30.00
Hydrogenized tallow other	(*a*)	0.00	0.00	40.00	40.00	40.00	40.00	120.00	120.00
	(*b*)	0.00	0.00	20 00	20.00	20.00	20.00	60.00	60.00
Non-hydrogenized tallow for alimentary purposes	(*a*)	0.00	0.00	50.00	50.00	50.00	50.00	150.00	150.00
	(*b*)	0.00	0.00	25.00	25.00	25.00	25.00	75.00	75.00
Non-hydrogenized tallow, other types	(*a*)	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00
	(*b*)	0.00	0.00	0.00	0.00	0.00	0.00	25.00	25.00
Lard for industrial purposes	(*a*)	0.00	0.00	50.00	50.00	50.00	50.00	150.00	150.00
	(*b*)	0.00	0.00	25.00	25.00	25.00	25.00	75.00	75.00
Other lard, crude	(*a*)	0.00	0.00	150.00	350.00	500.00	500.00	500.00	500.00
	(*b*)	0.00	0.00	75 00	250.00	250.00	250.00	250.00	250.00
	(*c*)	—	—	—	—	—	—	80.00	80.00
Other lard, refined	(*a*)	40.00	68.00	240.00	500.00	700.00	700.00	720.00	720.00
	(*b*)	30.00	51.00	120.00	250.00	350.00	350.00	360.00	360.00
	(*c*)	—	—	—	—	—	—	80.00	80.00

(*) Extract from *Government Measures affecting the Prices of Agricultural Products* 1936 No 5.
(*a*) General duty. — (*b*) Conventional duty. — (*c*) Tax, in addition to the duties.

The comparison cannot however be strictly established as account must be taken of the transport costs (0.25 to 0.50 per live kg. for beef, 0.40 to 0.80 for veal and mutton) and the prices per live weight must be compared, but so far as they go the figures shown in the Table indicate the maximum spread which occured in 1930, 1931 and for pigs and pig meat in 1929.

The customs duties however proved to afford insufficient protection for the home market. The Government then decided to have recourse to the system of quotas. By a first decree of 30 September 1931 quotas were established on imports of cattle, pigs, fresh, chilled, frozen and salted preserved, etc., beef and pork, including sausages, etc.; quotas were fixed for fresh, chilled or frozen mutton by Decree of 10 November; later on 26 March 1932 a new and last decree established quotas in respect of the importation of live sheep and of horses for slaughtering. These decrees did not apply to Algeria, as not being a foreign country.

TABLE XII. — *Quarterly Quotas allowed to be Imported.*

	4th quarter 1935	2nd and 3rd quarter 1935	1st quarter 1935	2nd quarter 1934	1st quarter 1934	2nd quarter 1933	1st quarter 1932	4th quarter 1931
	(number of head)							
Live animals:								
Horses	500	800	500	500	3,000	3,000	n. c.	n. c
Full-grown cattle	nil	nil	(1) 2,000	(1) 2,000	(1) 12,000	(1) 15,000	(2) 50,000	56,600
Calves	nil	nil	nil	nil	500	800	1,700	1,700
Sheep	15,000	20,000	15,000	15,000	26,500	25,000	n. c.	n. c
	(quintals)							
Pigs	nil	nil	(1) 3,000	(1) 5,000	(3) 25,000	(3) 25,000	(2) 30,400	30,000
Sucking pigs	nil	nil	nil	100	(1) 150	(4) 150		400
Meat:								
Fresh chilled or frozen:—								
Mutton	10,000	15,000	14,000	4,000	18,000	(5) 23,000	20,000	
Pork	nil	nil	nil	nil	10,300	(5) 15,500	21,000	70,000
Beef	nil	nil	nil	nil	15,000	(5) 25,000		
Horseflesh	nil	nil	nil	nil	300		66,000	
Salted or otherwise prepared	5,000	3,625	5,000	5,100	8,650	8,650	7,650	7,650
Sausages, etc.	1,400	1,400	1,400	2,100	2,000	3,500	(6) 1,000	(6) 1,000
Preserved meat	nil	nil	nil	nil	2,400	2,500	7,000	7,000
Lard	nil	nil	nil					

(1) Consigned exclusively to the Saar territory. — (2) Including 30,000 quintals for the Saar. — (3) Including 20,000 quintals for the Saar. — (4) 100 quintals destined for the Saar. — (5) By Decree of 3 February, the quota of 25,000 to 40,000 head of pigs and 15,000 quintals of fresh or frozen meat which was accorded to Morocco has been withdrawn. — (6) Quota excluding imports coming from Italy.

By decree of 3 February, the free quota allowed in Morocco had been abolished; the importing of live animals and meat coming from the Saar territory was prohibited, in order to ensure the efficacy of the measures taken, in view of the special customs regulations in force in the Saar.

It will be noted that the quotas have been gradually reduced and for certain categories, that at least in theory no further imports from foreign countries have been admitted; quantities imported are apart from quota, in consequence of special preferential agreements.

A statement may be made of the quantities annually admitted for importation under the quota system in the three last years, omitting the quantities admitted for the Saar territory.

	1935	1934	1933	1932
		number of head		
Horses for slaughter	2,600	4,700	12,110	(1)
Fully grown cattle	nil	nil	nil	30,000
		quintals		
Calves	nil	nil	nil	7,400
		number of head		
Sheep	70,000	71,500	100,000	(1)
		quintals		
Fully grown pigs	nil	5,000	20,000	34,000
Sucking pigs	nil	50	200	1,600
Fresh or chilled meat				
Mutton	54,000	69,000	87,200	88,000
Pork	nil	10,300	25,900	72,600
Beef and other	nil	15,300	74,700	215,000
Salted or otherwise prepared meats	17,250	22,900	34,600	33,850
Sausages, etc	5,600	7,900	8,700	14,000
Preserved meats	nil	2,400	12,500	26,000
Total of meat	*76,850*	*127,800*	*243,600*	*459,450*
Total imports	279,000	346,000	485,000	588,000

(1) Quota fixed from second quarter of year only.

It may be noted that the imports apart from quota have only slightly diminished since 1933 and that the contraction of the total imports is due to the extent of four-fifths to the quota system.

IMPROVEMENT AND RE-ORGANISATION OF THE MEAT MARKET.

The measures for protecting the home market against foreign imports were insufficient to prevent the onset of the crisis of production of meat, as that had to to with much deeper causes, the effects of which had merely been accentuated by the mass importations of 1930 to 1932.

The margin between the production price and the retail price of meat has been noted above. It is in part due to a general economic cause, the height of the fiscal charges, transport costs and labour costs, but it is also to a certain extent the consequence of two special phenomena: the difficulty in selling the poorer quality meat and the offals, fats, skins, and on the other hand the very great centralisation of the meat market in France.

The fact of this centralisation will appear when it is observed that the Paris market reconsigns annually to the provinces 7 to 10 per cent. of the meat there consumed and that the regional abattoirs are relatively few and are not always sufficiently well equipped.

Table XIII shows that although the re-consignments from Paris to the provinces remain large—the organisation in question being of a kind that is difficult to modify in a short time—they tend to be made increasingly in the form of killed meat and to a less extent in the form of live animals. In a similar way the arrivals of killed meat at the central Halles have acquired, especially in the case of veal and mutton, a growing importance in comparison with arrivals of live animals.

There is thus a very decided tendency, if not to decentralisation of the market at least to that of the slaughterings.

The work of improvement and re-organisation of the meat market should include, so far as possible, plans for the reduction of live stock numbers by the elimination of damaged or diseased animals—this applies in particular to cattle—,but also especially, for the reduction of the margin between prices at the production stage and the retail prices of meat; in addition steps should be taken to obtain better prices for meat, offals, etc., and to encourage regional slaughtering.

These various points have been made the subject of the law of 16 April 1935; this law for the improvement and re-organisation of the meat market was the subject of much careful previous discussion, both among the vocational associations and in Parliament, and inciudes two groups of provisions, as indicated in its title.

For the *improvement* of the meat market, provision is made for the slaughter of tuberculous or diseased cows to be carried out by the Veterinary Service on the basis of compensation reckoned on the actual market value of the animal so slaughtered.

It is, in addition, made compulsory to display in butchers' shops lists of retail prices, in order to ensure the control and customs protection of the by-products, animal fats and lard. Further, regulations have been made under the public administration for ensuring supplies to the troops of meat of national origin, to the exclusion of foreign imported meats.

TABLE XIII. – *Consignments and Re-consignments at the Paris Market and Abattoirs.*

	1933	1931	1929	1927	1924	1922
La Villette market:	(Thousands of head).					
Full-grown animals: Consignments .	392	307	421	381	323	378
Re-consignments	106	177	120	125	127	152
»	27 %	25 %	29 %	33 %	39 %	40 %
Calves: Consignments	210	190	208	204	186	212
Re-consignments	75	72	97	84	98	93
»	34 %	38 %	46 %	42 %	48 %	44 %
Sheep: Consignments	1,000	980	1,101	1,211	1,052	1,099
Re-consignments	168	177	187	229	253	256
»	17 %	17 %	17 %	18 %	24 %	24 %
Pigs Consignments	218	283	279	243	325	396
Re-consignments	134	178	164	157	183	221
»	61 %	63 %	59 %	65 %	56 %	56 %
Abattoirs:	(Thousands of quintals)					
Butchers' meat Consignments . .	1,634	1,374	1,577	1,461	1,263	1,229
Re-consignments .	901	646	785	603	500	501
» .	55 %	47 %	50 %	41 %	40 %	40 %
Sausages, etc. **Consignments**	467	481	425	245	275	—
Re-consignments . .	192	178	132	67	32	35
» . .	41 %	37 %	31 %	28 %	12 %	13 %
Central " Halles ":						
Consignments.						
Beef	331	283	331	292	212	263
Veal	403	364	392	373	313	332
Mutton	138	144	117	131	103	108
Pork	99	91	82	88	104	112

For the *re-organisation* of the meat market, provision is made in the law for the installation with State assistance of establishments intended for the local slaughter of stock with facilities for the forwarding of the slaughtered products to the consuming centres.

The Chambers of Agriculture, on being consulted on the question, are found to be opposed to the establishment of large regional abattoirs working as factories and in co-operative form. Experience has proved that such establishments could not maintain normal working for want of adequate trade channels; hence the Chambers have instead encouraged the formation of small establishments, communal or intercomunal, or managed by syndicates, well equipped and designed to meeet local consumption requirements.

Conclusion.

The foregoing study has emphasised the extent and the frequency of the fluctuations in production, consumption, external trade and meat prices, fluctuations which have resulted in a situation of great instability and finally in a serious crisis marked by a very sharp decline in prices. Under the influence of this very price decline a certain equilibrium is tending to become re-established between production and consumption; in 1935, the margin between the prices at the production stage and the retail prices was reduced and some slight rise was noted.

Protected against foreign competition by a system of fairly severe quotas, benefiting by the measures included in the law of 1935, the position of meat production in France should normally show improvement. It is however too soon to judge of the results of the law from the point of view of re-organisation, which, even on the market, must be a work requiring time and very careful handling.

P. DE VIGUERIE.

THE MECHANISATION OF AGRICULTURE IN LATVIA

SUMMARY. — I *Mechanisation as one of the fundamental problems of agriculture in Latvia* The inadequate supply of farm workers Development of intensive cultivation The prices of agricultural machines and their present number in Latvia Technical conditions for the use of machinery; soil; shape of the fields, crops, the question of horses Number and work of societies for the joint use of agricultural machines — II *Measures taken by the Government to encourage the mechanisation of agriculture* Development of agricultural machinery stations and regulation of their working Law on the improvement of the quality of machines. Standardisation Mechanisation of the transport of milk The financing of mechanisation

I. — MECHANISATION AS ONE OF THE FUNDAMENTAL PROBLEMS OF AGRICULTURE IN LATVIA.

From the first, it has been the endeavour of the present Government of Latvia to improve the conditions of agriculture, but serious difficulties have been encountered, among which one of the greatest is the inadequate supply of farm workers.

There are approximately 150,000 farm holdings in Latvia on which farm workers are employed in addition to members of the holder's family. Of the four provinces of Latvia—Zemgale, Vidzeme, Kuzeme and Latgale—an adequate number of farm workers is to be found only in the last. In the three first provinces, the farmers are obliged to bring in from the province of Latgale and even from other countries, especially from Poland, Lithuania and Estonia, the large numbers of farm workers they require. In these three provinces, there are some 100,000 farm holdings on which the number of farm workers is insufficient. On the other hand, the statistics show that farm workers have been brought into these provinces from that of Latgale and from abroad, in numbers gradually increasing from 1933 to 1935: *viz.*, 48,347 in 1933, 63,116 in 1934 and, according to the latest information available, 73,475 in 1935. Of these, 84.2 per cent. were farm workers, and about 8 per cent. forestry workers, etc. In 1935, approximately 35,000 farm workers were brought in from foreign countries.

According to the data of the State Statistical Bureau of Latvia, the proportion of farm labour introduced in 1935 is as follows:

	Number of workers introduced per 1000 farm workers	Index-numbers taking Zemgale = 100
Into Vidzeme (Livonia)	470	69
Into Kurzeme (Courland)	369	54
Into Zemgale	680	100

In Latgale, the number of foreign farm workers brought in is negligible. On the other hand, it is reported that in the other Latvian provinces agricultural production now depends on the introduction of labour, for the most part foreign, and that this is especially noticeable in the province of Zemgale. According to a statement made by the Government, if for any reason this introduction of labour were suspended, a normal agricultural production would become practically impossible. This explains the special importance attached by the Government to the question of farm labour among all questions relating to the improvement of the conditions of agriculture, an importance increased by the fact that Lithuania and Poland do not encourage the emigration of their farm workers. It will thus be necessary to deal with the matter in such a way as to make it possible for the farmers to dispense with imported labour.

	Absolute figures					Index-numbers (1928 = 100)				
	1928	1931	1934	1935	1936	1928	1931	1934	1935	1936
Number of workers introduced from foreign countries	12,364	24,020	22,854	34,209	40,000	100	194	180	276	324
Wage of a seasonal farm labourer in lats	361	328	193	220	188	100	91	53	60	52
Wage of a female seasonal worker in lats	250	229	149	170	166	100	81	59	68	67

The above table presents a survey of the introduction of foreign farm workers, as well as the proportion each year, taking 1928 = 100, also the wages of Latvian workers, in Latvia.

According to the preliminary data of this table it will be seen that, side by side with the increase in the importation of foreign labour, the wages of the farm workers fell. The *Latvijas Lannsaimnilus*, the official organ of the Latvian Chamber of Agriculture, shows (No. 6, 1936) that the wages of the farm workers in Latvia are none the less still at the present time much higher than in Lithuania and in Poland, whence comes the greater proportion of the foreign farm labour.

The wage paid to a seasonal worker in 1935 was 220 lats for six months and a half and 34 lats per month, while for the same period the wage in Poland would be 10 lats, in Lithuania 13 lats and in Estonia, given the low rate of the Estonian currency, 11 lats.

The relative fall of wages in agriculture has seriously affected the conditions of farm workers in Latvia and stimulated their migration to the towns, although no large scale. industrial and commercial activity exists there. Taking the period 1927 to 1931 as a base equal to 100, the railway transport of goods fell from 116 in 1929 to 57 in 1932, and then rose to 76 in 1936. Traffic fell even to 31 in 1934.

Increase in Crops, in Stock Farming and Number of Work-days from 1929 to 1935.

	Increase in crops (in ha.) and live stock (in head)	Increase in work		
		Number of work-days	Percentage	Number of workmen
Potatoes	28,500 ha.	1,812,600	10 75	12,082
Sugar beets	11,140 »	1,785,742	10 59	11,903
Wheat	60,400 »	1,427,116	8 46	9,512
Other crops	146,150 »	1,603,985	9.51	10,693
Crop total	246,190 »		39.31	
Cattle	181,500 head	5,517,600	32.71	18,391
Pigs	278,600 »	3,343,200	19.82	11,144
Horses	19,000 »	216,600	1 28	722
Sheep	257,900 »	1,160,550	6.88	3,868
Live stock total	737,000 »			
Sum total	—	16,868,393	100 —	78,316

One of the chief causes of the shortage of farm labour is undoubtedly to be found in the great change that has taken place in respect of the utilisation of arable land. In the last few years there has been a development of the sugar beet industry and at the present time the sugar production is adequate to the national consumption requirements. There has been a continuous increase in the area of lands planted in sugar beet, which in 1935 was about 16,000 hectares. An extension of potato growing has also taken place, from 80,000 ha. before the war to 110,000 ha. at the present time. This increase is largely due to the law on the mixture of alcohol in motor spirit. A similar expansion is to be noted in other kinds of cultivation and also in the live stock numbers. The number of work days was bound to increase, as is seen from the accompanying table (p. 295).

The factors that have rendered necessary the mechanisation of the different branches of agriculture, as well as the progress made in the use of machinery, can be seen from the following table:

	1923	1934	1935 (preliminary data)
Arable land	100	115	125
Manual labour	100	126	128
Live stock	100	214	311
Agricultural machinery	100	165	221

The number of agricultural workers in Latvia is seen to have increased by 28 per cent. during the last 12 years. The same increase may be noted with regard to the area of arable land, while the number of live stock is more than 200 per cent. higher than in 1923. The mechanisation of agriculture is necessitated firstly by stock breeding, and secondly by agriculture itself; as regards the different crops, potatoes are the most important, sugar beet coming next.

Even taking into consideration, however, the cultivation of wheat, a 40 per cent. increase only in the work-days per annum from 1929 to 1935 has been due to arable farming, while the increase due to stock farming and especially to cattle breeding has been one of 60 per cent.

If the Government proposes to restrict the importation of foreign farm labour, it is chiefly to these latter branches of farming that there will have to be applied either a decrease in production or a change in the crops grown, or else a rationalisation of cultivation methods.

If the increase in work-days during the year has brought about so large an importation of agricultural workers, it is because of the high prices of agricultural machinery and implements made in the country. The Secretary General of the Chamber of Agriculture reported at the meeting of the Latvian Chambers, in April 1936, as the principal causes that have prevented the natural trend of the mechanisation of agriculture in the country since 1929: the crisis in agriculture and the low purchasing power of the Latvian peasants, while the prices of agricultural machinery and implements of home manufacture are relatively high. These prices have even increased since 1930. The Secretary General at the same time drew attention to the fact that, in other branches of production, the prices of raw materials and of fuel have been considerably reduced: the price of iron declined from 251 lats in 1929 to 159 lats in 1934; the corresponding price declines for cast iron are from 123 lats to 55 lats, from 34 to 21 lats for coal, from 53 to 28 lats for coke, etc. The wages of skilled workers in metallurgy and machinery have also undergone a reduction of 25 per cent.: in fact, a workman, in 1930, used to receive 81 centimes in Latvian money per hour, whereas, in July 1935, not more than 60 centimes was paid.

At the same time the agricultural machinery and implements manufactured in the country are more expensive than those imported from abroad. The Secretary General of the Chamber of Agriculture showed that during the years 1923-1929, the number of potato lifters increased at the rate of 492 per annum, but, from 1929 to 1935, this rate of increase fell to about 200. The purchase of these machines has diminished, as importation from abroad has been prohibited, and the quality of the machinery produced in Latvia was certainly not such as to encourage buying.

Number of Agricultural Machines in Latvia.

	1923	1924	1935	Increase from 1929 to 1933
Mowers	16,000	28,000	40,000	11,400
Horse rakes	16,300	24,100	32,000	7,900
Harvesters	14,100	19,400	24,000	4,600
Seed drills	3,700	7,800	11,500	3,700
Potato diggers or lifters .	700	3,700	4,900	1,200
Tractors	127	313	416	103

The average increase in the number of agricultural machinery during the last 6 years was not very considerable: the yearly average being about 1,900 mowers, 1,632 horse rakes, 767 harvesters, 617 seed drills of various types, 200 potato diggers, and only 17 tractors.

The high price of agricultural machinery and the low purchasing power of Latvian peasants are not the only obstacles to the mechanisation of agriculture: the other and the most serious obstacles include the absence of soil improvement and the shortage of horses.

The period during which the soil can be worked in Latvia is very short, although the climatic conditions are fairly good.

This shorter period of agricultural work in Latvia, while not explicable on purely climatic reasons, is due to the fact that only one per cent. of the lands which stand in need of improvement have actually been improved; soil improvement prolongs the season of farm work by one month.

On non-improved lands there is little possibility of using farm machines; much work is in fact required to carry out the harvesting on wet lands by means of sickles, potato-diggers, etc. A large number of machines cannot be used on unimproved lands as they are on improved lands, and accordingly much more labour is required. Sometimes, as recent examples have shown, it is quite impossible, during a period of high precipitations, to proceed to harvesting, on fields not scientifically drained, using farm machines. It is this which caused the President of the Chamber of Agriculture to say that, if the land improvement operations can be speeded up by one fourth, it will become possible to economise each summer 70,000 work days. In view of the uncertain conditions of production, it would be undoubtedly too risky to depend entirely on machines, without maintaining an adequate number of farm workers. Moreover the Latvian Ministry of Agriculture has stated that a certain number of farm workers will always be essential even on farm holdings which are well equipped with machines. Now, as the number of Latvian farm workers tends to fall below the minimum at the present time necessary to the national agriculture, even if there should be a considerable increase in the number of machines and technical equipment, it will not be practicable to reduce, except to a negligible extent, the numbers of workers introduced from abroad.

At the Scientific Congress of Farm Experts, held in January last, it was remarked that the crop yields of the unimproved land in Latvia are far from regular. Any reduction in cereal growing would thus involve considerable risk, as it would no longer be possible to distribute, with any regard for proportion, the farm labour during the summer. This distribution is at present rendered possible by the relatively prolonged cultivation of the winter sown cereals, which assists in bringing about a more regular distribution of work during the sowings and harvest.

In Latvia, the majority of the fields are about half a hectare in area. When farm machines are used on fields of this size, their work capacity is certainly much less than on fields of over 10 hectares. It is for this reason that machines are not used to any great extent, at least by the majority of farmers. It should be noted further that their work capacity is lowered by the turnings necessary at the corners of the fields.

The smaller the area of the field the more often are turnings necessary, and in consequence there is a loss of time shown on the following table:

Loss of Time due to Turning of Machines as Percentage of the Time Employed.

	Length of perimeter of field in metres			
	50	100	500	1000
Ploughing	25	13	2.6	1.5
Harrowing	30	15	3.0	1.5
Sowing by drill	40	20	4.0	2.0
Reaping with harvester	24	12	2.4	1.2

It appears from this that on fields of small dimensions, the loss in output of work is about 22.8 to 38 per cent. There has to be added the moving about of the machines which requires more time the smaller the field is. The work output of a horse seed drill or a horse reaper is about 4 to 5 hectares per clear day of 10 hours. If machines are used on small sized fields, they will have to be moved from one field to another 5 to 16 times in the day, and the loss in work output may be, according to distance, 20 per cent. greater. The total loss in the work output, if the loss on the turnings already mentioned be added, will be from 33 to 50 per cent. This applies not only to machines, but also to horses. If farm machines are to be employed in Latvia without having to reckon for losses in output of this nature, it will be essential to cultivate on longer furrows and to introduce land drainage. The form of the fields is important in connection with the use of agricultural machines on sugar beet crops, and also on other crops, the extension of which in Latvia has contributed in a marked degree to the increase farm labour imported from abroad.

The difficulties which appear in Latvian agriculture, in relation to the more intensive cultivations, such as those of potatoes and sugar beet, are easily explicable on considering the conditions of cultivation of the latter plant. The work of thinning cannot be delayed without considerable injury to the crop. It has been found that in Latvia, if the spacing of the plants is 25 cm., a delay of 30 days in thinning increases the quantity of work required by 140 per cent. and reduces the crop by 20 to 32 per cent. Thinning, when done by non-specialised workers is much more costly than when the workers know their work thoroughly. With equal conditions of work, a non-specialised worker will be able to thin 40 metres of beet in one hour, while an expert worker will thin 200 and even 300.

Moreover the thinning, which is the most important part of the work of beet cultivation, is almost impossible without a spade; but the Latvian farm worker does not know how to use a spade, a fact which explains why this crop requires in Latvia much more work than in other countries where the spade has been traditionally in use. Thus the present economic conditions demand the replacement of farm labour in sugar beet cultivation as far as possible by the use of machines. As already stated, however, for mechanisation long furrows are essential and these are seldom found in Latvia; otherwise it is very difficult to substitute mechanical cultivation for manual labour.

It should also be noted that the mechanisation of sugar beet growing is difficult not only on account of the small size of the fields in Latvia, but also because, for the use of machines to be profitable and for sugar beet farming to be possible at all, fields of more than 2 hectares must be available.

On the contrary in Latvia the area of sugar beet crops has diminished from 15,000 ha. in 1935 to 12,000 ha. in 1936, or by 20 per cent., while in the same period the number of farm holdings engaged on this cultivation has increased from 16,000 to 20,000. The Ministry of Finance has approved contracts with the sugar beet growers, in accordance with the rules drawn up by the Latvian Chamber of Agriculture, guaranteeing to the owners of an area of arable land up to 8 hectares, the purchase of 7.5 tone of beet; of 15 tons for an arable area of 8 to 20 hectares, and of 30 tons for larger areas. The object is to make it possible for a fairly large number of peasant farmers to take part in this cultivation, although the total area devoted to sugar beet is not large and represents only one per cent. of the total area of arable land. In addition the Latvian peasant farmer receives 76 per cent. of the selling price of sugar as compared with 46 per cent. in Romania, 67 per cent. in Italy and 69 per cent. in England. This distribution of sugar beet growing over so large a number of farm holdings makes it practicable to use more freely natural manures; this tends to reduce the importation of the commercial fertilisers which are needed if this crop is concentrated on the larger holdings. In the opinion of the Government, the distribution of this crop over holdings of small size reduces the employment of seasonal foreign workers and also enables the farmers to avoid loading their horses too heavily.

The use of agricultural machinery is complicated by the question of horses; much inconvenience is caused by the fact that the small Latvian horses find difficulty in drawing the heavy agricultural machinery. This horse is very suitable for work where turning is necessary, and also gives good results in short furrow fields. On the other hand, the long furrows tire it out and shorten its life; in fact, in Zemgale, where the fields have longer furrows, the small horses retain their working capacity for a much shorter period than in Livonia, where the furrows are shorter. Zemgale is beginning to suffer from a shortage of horses; also the necessity arises for a horse which can easily adapt itself to the conditions of a region where the utilisation of farm machines would be advantageous. The type of horse generally considered to be the most suitable for the conditions of Zemgale and for the use of agricultural machinery is the large size Ardennes. On the other hand, it cannot be employed in fields where frequent turning is required, unlike the light Latvian horse for which turnings give the necessary opportunity of a pause for rest. In Latvia, a horse must have the characteristics of a trotter. The academician Middendorf notes the good gait of the Ardennes horse and its capacity for working on wet soils and especially its docility. This last characteristic is the more important where the cultivation of sugar beets is concerned.

The shortage of horses is an important feature of Latvian agriculture at the present moment; it has already lasted for many years. The territory of Latvia suffered greatly during the world war and was completely laid waste. After the war, when this country became an independent State, the number of horses was found to be reduced by a third, and, moreover, as the best horses had been requisitioned, land owners were left with the poorest types. The total head increased from 260,000 in 1921 to 340,000 in 1924, but this number was only attained by importing horses from Lithuania. After the war, the importation of horses into Latvia became very considerable; in 1924, about 17,000 horses were imported, but this was the maximum. At the present moment, these animals are old. Calculating 6 per cent. of 375,000 horses, there should be about 23,000 colts not more than one year old in Latvia, while in reality, there are only 15,000. Accordingly, there is a shortage of 8,000 colts per year to maintain the numbers. In actual fact, this figure should be much higher, for, as stated, a large proportion of horses in Latvia are imported from abroad, and a certain number of Latvian horses would be necessary to cause this importation to disappear. At present, the import is fixed at 2.000 animals per year, but according to the Ministry of Agriculture, by 1940 this importation will have entirely ceased.

Horse breeding is much more difficult in Latvia than in Lithuania. A quintal of barley in Latvia costs about 11 lats, while the corresponding price in Lithuania is from 5 to 6 lats. Again the horses bred in Latvia cost much more than those imported from Lithuania, and do not find any buyers owing to the low purchasing power of the Latvian peasant. Thus in Latvia, there is a relatively large number of old horses. All these circumstances result in maintaining the high prices for horses, prices which moreover tend to rise even higher. In 1932, the average price for a horse was 148 lats, while in December of the same year, it had already increased to 172 lats; in April 1934, the price was 196 lats, in February 1935, 194 lats, and in March 1935, 208 lats. According to the data of the State Statistical Bureau of Latvia on the prices for March 1936, the average price for a horse in Zemgale has increased to 380 lats. On the other hand, these prices are still too low considering the expenses entailed in rearing a horse in Latvia, which amount to 700 lats. Besides, these costs are not in proportion to the purchasing power of Latvian farmers while the high prices result in considerably fewer horses being employed on farms. It is chiefly at Zemgale, the most important wheat-growing centre of the country that this shortage of animals is especially felt. This region has the best and most important production of wheat, sugar beet, etc., but there are too few horses by 25 per cent. of the total number, that is to say, by 80,000 head. As far as possible, these should be replaced by tractors.

The position of the associations for the joint use of agricultural machinery may be seen from the following data, supplied by the President of the Co-operative Section of the Chamber of Agriculture of Latvia, in respect of the year 1934.

	Associations for the use of threshing machines (average)	Associations for the use of grading and other machines
Value of machinery	11,373 lats	1,145 lats
Shares of members	3,577 »	391 »
Sinking fund, etc.	7,349 »	982 »
Creditors	3,555 »	221 »
Received for the use of the machinery	2,873 »	150 »
Expenses		
Wages and lubricating oils	990 »	21 »
Repairs	406 »	12 »
Interest	172 »	7 »
Insurance	85 »	3 »
Depreciation	553 »	76 »
Profits	562 »	60 »
Losses	647 »	126 »
Number of members per association	18	17

On more close examination of these data, it will be remarked that the number of members is very limited; it follows that the membership fees do not suffice to pay the expenses of the associations, the existence of which, therefore, depends on the profits coming from farmers who are not members, that is to say, through the market or in competition. This is very difficult, especially for associations for the joint use of threshing machines. Besides, out of 450 associations for the joint use of machinery founded in Latvia after the world war, only 291 are still in existence, of which 250 are actually functioning. Among these, 117 are societies for the joint use of threshing machines, 154 for that of grading machines, 21 for winnowers, 21 for fertiliser spreaders, 11 for clover seed drills, 11 for potato diggers, 4 for harvesters, and finally, 29 for timber cutting machinery.

Generally the association is dissolved because the machines are not sufficiently utilised Moreover, the associations contracted heavy debts,—from 20 to 22,000 lats at an interest of 12 per cent per year,—in order to buy the machines as purchase was made when prices were high. The interest, the depreciation, wages, lubricating oils, repairs and other expenses amount to 6,000 lats per annum In order to pay this sum, 13,000 quintals would have to be threshed a year at 50 Latvian centimes a quintal, and this is only possible when also working for farmers who do not belong to the association. The President of the Co-operative Section of the Chamber of Agriculture of Latvia notes that even now when prices of machines are reduced and credit is easier, some of these associations encounter serious difficulties because their machines are not sufficiently utilised.

The insufficient utilisation of machinery is not only due to the limited number of associations, but also to the changes which agriculture has undergone in Latvia during recent years and to the difference between Latvia and the countries where the use of machinery is diffused The absence of adequate land drainage, the shortage of horses, etc , may be mentioned here

The poor results obtained from the steam threshers appear due to the obsolete type of machine and to the little use in practice, this refers chiefly to districts where wood is scarce The Director of the Forestry Department, in March, 1936, informed press representatives that, at Zemgale, each farm could obtain only 3 cubic metres of wood for burning, while formerly the quantity allowed to the peasants by the Forestry Department was considerably greater. Firewood can still be bought on the market at the present time, but the prices are so high that the farmers do not buy it. The shortage of firewood is leading to the replacement of steam locomotives by tractors for which the fuel is becoming cheaper, and it is seen that everywhere locomotives are being sold and tractors bought.

This shows that the liquidation of the societies for joint utilisation of machines is not due simply to defects in their organisation, but that it is a result of the economic situation of recent years and of the policy of the Latvian Government

II. — MEASURES TAKEN BY THE GOVERNMENT TO ENCOURAGE THE MECHANISATION OF AGRICULTURE.

The liberation of Latvian agriculture from foreign imported labour will be secured rather by the mechanisation of agriculture than by any endeavour to check the importation of foreign farm labour, and the same policy will conduce to the solution of the horse question which for many years past has become a real crisis.

The Government has made considerable efforts to increase the number of the stations for joint utilisation of farm machines. It was remarked by a special committee of the Ministry of Agriculture in 1935 that the results of the work of Latvian farmers are entirely dependent on climatic conditions, since they do not possess an adequate number of farm machines. To the question: " Why is so little progress made in the utilisation of machines, especially of the heavier type ? " the Minister of Agriculture replied. " Latvian farms, particularly those on which the area of arable land is small, cannot buy the heavier and more costly farm machines as the earning capacity of these is not sufficient and accordingly it does not pay to purchase them It is the business of the Ministry to find the way of overcoming these difficulties. There are in existence already stations and associations for the joint utilisation of machines. If in some cases these stations are in an unsatisfactory condition, that is not the fault of the station, but of the manner of working them It is not necessary to suppress them, but it is necessary to alter the system of administration. The Ministry of Agriculture proposes to organise, during the summer of the present year, stations utilising motor lorries and motor cars, driven by skilled workers receiving pay directly from the State These machines will be placed, at low rates of hire, at the disposal of the farmers, and it will be the business of the stations to help the farmer to carry out agricultural work or transport which he cannot undertake in isolation While thus coming to the aid of farmers, the opportunity will be afforded of making experiments with machines in agriculture If good results follow, it will be open to the farmers themselves to diffuse the use of machines, with Government aid, wherever there is need "

Some months later, the Minister of Agriculture established the rules for the use of tractors for stations under the control of the Ministry as follows. The tractors are the property of the Ministry of Agriculture, but the administration is entrusted to the organisation receiving them, together with all liability. The driver of the tractor is also appointed by the organisation, the appointment is ratified by the Ministry who pays up to 200 lats per annum to the organisation to enable it to pay the driver. A maximum rate is fixed for the use of the tractor and of farm implements. Four stations have already been allotted tractors, and motor cars have been assigned to a larger number.

In view of the additional charge on the trade balance resulting from the increased importation of farm machines, the Government has already taken the first steps towards the regulation of production and importation. It has been recognised that foreign machines are essential to the work of the Latvian farmer, but to avoid the introduction of poor quality brands, importation is regulated by means of a special law.

On 7 May of this year the Government promulgated a special law on the inspection of farm machines and implements " All machines and all implements used in agriculture, whether manufactured in Latvia or introduced from other countries, are subject to the control and inspection of the Ministry of Agriculture. " From the following paragraphs there will appear the full importance this law may have in respect of the improvement of the quality of farm machines and implements.

" 2. In order to carry out this inspection, the Ministry of Agriculture is empowered to require from every manufacturing and trading firm, and without compensation, samples of machines, parts of machines and implements as well as of the materials used in their manufacture".

" 4. The Ministry of Finance is empowered, on the proposal of the Ministry of Agriculture, to prohibit the manufacture or the sale on the market of any machine, implement or part of machine considered, after inspection, not to give good results, and the Ministry is further empowered to give instructions for the modification of machines, implements and of the material used in their construction. It has the right to ascertain whether the manufacturing or trading firms in question are satisfactorily conforming to the instructions issued".

" 7. On the proposal of the Ministry of Agriculture, the Ministry of Finance is empowered to punish any infringement of this law by a fine up to 2,000 lats."

The Chamber of Agriculture has found from past experience that only the largest farms can afford for their own private use, a harvester, a mower and a horse rake. Small or medium sized farms can easily manage by sharing these implements between them. One potato digger could quite easily suffice for the needs of 5 or 6 medium sized farms, and 2 or 3 large farms. Consequently, in Latvia, besides the machinery already existent in the country, about 27,500 harvesters, 19,500 mowers, 23,600 horse rakes and 13,300 potato diggers are required.

It is agreed that imported machines must respond to the following requirements: 1. The type of machine must be examined and recognised as fit for use. 2. It must show an improvement from the point of view of construction and material on the machines manufactured in the country. 3. The delivery of spare parts must be guaranteed at a reasonable price. 4. A machine of foreign manufacture cannot be imported if there is already in existence in the country a similar machine, warranted by the manufacturer as corresponding in quality to good foreign brands, and to the requirements of agriculture. 5. The variety of types in the corresponding groups of machines must conform to the requirements of the standardisation.

Model machines must be imported and exhibitions of these machines organised in such a way as to allow of their demonstration to the persons interested. It should also be made possible to compare the various types of machinery in the different districts.

These new stations are endeavouring to diffuse the utilisation of motor cars and tractors which will compensate for the shortage of horses from which agriculture is suffering. Machinery for ploughing and harvesting will no longer be neglected, and the stations up to a certain point will provide for the replacement of manual labour; in this way, the normal production of Latvian agriculture will no longer be dependent upon foreign labour.

The machinery stations are organised on a different basis from the associations for the joint utilisation of machinery, where the output of work of the machines was unsatisfactory, owing to the shortage of fuel oils and the high price of fuel wood. On the contrary, the tractors utilised in the new stations can easily be transported and are not costly to work.

It is also very convenient to import farm machines for which the delivery of spare parts at reasonable prices is guaranteed. Of all the motor car and tractor manufacturers, Ford offers the best conditions in this respect, as the spare parts of this make of machine can easily be obtained anywhere. As a result however of the trade agreement concluded between Latvia and Germany, and of the export premiums arranged by the latter country, Hanomag-Diesel tractors are being imported by Latvia. The price of these tractors of 36 to 40 HP is about 7,750 lats, that is 25 to 30 per cent. cheaper than in Germany. It should be noted that these tractors require very little fuel oil: only 200 grammes of fuel oil per hour per HP. For these tractors, a saving is guaranteed of 75 per cent. on locomotive steam engines, 50 per cent. on petrol or benzine power tractors and about 80 per cent. on motor spirit tractors. This all facilitates the sale of German products in Latvia. It should be mentioned that during recent years, the Latvian farmers have been buying more and more machines from U. S. S. R. as they are cheaper and the quality has appreciably improved. This accounts for the diversity in types of machines.

There are still many instances where the mechanisation of agriculture is absolutely necessary. Attention is drawn to the question of hydraulic plant, which has not yet been satisfactorily solved. Water is much dearer in the country even than in Riga where it has to be bought. The water of 90 per cent. of wells is fit neither for drinking nor for cooking purposes.

As well as hydraulic plant, many machines are required for agriculture. One of the most important branches of farming which should be mechanised to a far greater degree than at present is the milk industry.

For some time an endeavour has been made to group all dairies together and to centre the butter production in one principal organisation. There was much discussion last year about increasing the number of separating stations, but in the Chamber of Agriculture many arguments have been put forward for the liquidation of these stations, the proposal being to organise the milk delivery by motor vans. The view is that it will be impossible to improve the quality of the butter for export and to lower the price as long as there are so many separating stations in existence. One great obstacle to the mechanisation of milk transport, which would leave a greater number of horses free for work in the fields, is the small number of roads, especially in comparison with Denmark. At present, conditions are such that farmers seek to economise at the expense of the dairies by delivering the milk not every day as they should do, but every second or third day. Accordingly, with this milk it is not possible to make a first quality butter for export, hence the considerable losses on the export of Latvian butter.

These are the reasons which have brought the question of mechanisation of milk delivery to the fore. If the milk delivery could be effected every day, the quality of butter would improve while at the same time a number of men and horses at present occupied in this work would become available for agriculture, and production would no longer be dependent on the importation of foreign labour.

The Ministry of Agriculture has organised some stations for the transport of milk to the dairies by means of motor vans. The drivers of these vans are paid by the State. The transport prices are 15 Latvian centimes per kilometre for the journey without load and 20 centimes for a load of 2.5 tons. A fund of 20,000 lats has been established to cover possible deficits. The stations have been organised chiefly in Zemgale so as to remedy the shortage of horses there. Up to the present, Renault machines are exclusively employed.

With a view to promoting the mechanisation of agriculture, the Latvian Peasant Credit Bank advances cash to famers for the purchase of machines through the medium of agricultural organisations (dairy societies, societies for the joint utilisation of machines, etc.) and also to groups of at least three farmers, so as to facilitate the use of these loans by small holdings, savings banks, etc.

The Bank makes loans to agricultural organisations and to isolated farmers for the purchase of farm tractors at 5 per cent. repayable in 2 years, and for the purchase of other farm machines, threshers, mills, motor lorries, etc., at a rate of 6 per cent. interest. It grants credit alike to well established Riga firms and to provincial firms at 5 or 6 per cent., on condition that these firms which grant bills of exchange to farmers for the purchase of farm machines and implements charge an interest not exceeding the bank interest by more than one and a half per cent. The extent of the credit of each firm will be indicated by the Bank. Organisations and firms should require from the farmer at least 25 per cent. of the value of the goods as advance payment.

The State has done much for the mechanisation of agriculture, especially in connection with tractors The Ministry of Agriculture hires tractors to farmers for a sum of 300 lats per annum, and also sells tractors at a very moderate price (1,832 lats, or the price of three horses) These are purchased by the Ministry from foreign firms, after a rigorous selection, as owing to low prices speculation is very easy. Up to the present only the large farms of Zemgale have received these tractors, as they can make the best use of them. Only Fordson tractors are here in question. The other tractors cost on the open market from 5,000 to 6,000 lats

Voldemar KUNKIS.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

CALOT F. et G. THOMAS. Guide pratique de bibliographie, suivi d'un memento analytique des principales bibliothèques publiques de Paris. Paris, Delagrave, 1936. 320 p. (Bibliothèque des chercheurs et des curieux).

Economics

DE FLORENTIIS, G. L'altra guerra: le materie prime e l'Italia. Milano, V. Bompiani, 1936. VII, 298 p. (« Libri scelti »: panorama del nostro tempo, v. 37).

Legislation.

CICU A. Diritto agrario. Bologna, « La Grafolito », 1935 285 p (R. Università di Bologna).

Statistics.

CANADA. Bureau of statistics. 7th Census of Canada, 1931. Census of agriculture Ottawa, J. O Patenaude, 1935.
[v. 8]. Quebec. 197 p.
[Text in French and English].

[MEXIQUE]. Dirección general de estadística Quinto censo de población, 15 de mayo de 1930 México, Talleres gráficos de la Nación, 1936].
v. 413. Estado de Hidalgo. 209 p.

Rural Economics

GROISNE R. La politique française du blé depuis la guerre Paris. Librairie technique et économique, 1936. 203 p.

MANETTI C. Etiopia economica: panorama economico agrario dell'Africa Orientale Italiana e dell'Abissinia. Firenze. R. Bemporad [1936]. 194 p.

MURAT A. La propriété agraire en Italie. Lyon, Impr. de Lyon, 1936. LIV, 425 p.

Co-operation.

CHMIELEWSKI Z. Czynniki psychiczne spółdzielczości. Warszawa, Wydawnictwo Spółdzielczego instytutu naukowego, 1935. [184] p. (Bibljoteka spółdzielcza, nº 26).
[Psychical factors of cooperation].

Insurance.

FEDERAZIONE NAZIONALE FASCISTA IMPRESE ASSICURATRICI. Annuario italiano delle imprese assicuratrici 1936. [Milano, Arti Grafiche Combi] 1936, 553 p.

Labour.

ARCARI P. M. Le variazioni dei salari agricoli in Italia dalla fondazione del Regno al 1933. Roma, Tip. I. Failli, 1936. XX, 754 p. (Istituto centrale di statistica. Annali di statistica, serie 6, v. 36, 1936).

Various.

ROSSI C. Dizionario tecnico tedesco-italiano e italiano-tedesco. Milano, U. Hoepli, 1936 (Manuali Hoepli).
v. 1. Tedesco-italiano. 1936, 278 p.

ALLORI A. Piccolo dizionario eritreo: raccolta dei vocaboli più usuali nelle principali lingue parlate nella Colonia Eritrea Italiano, arabo, amarico, tigrino. Milano, U. Hoepli, 1936. XL. 199 p. (Manuali Hoepli).

Periodicals (1), (2), (3).

ALGODÃO. v. 1, 1934, mens. Rio de Janeiro 20$000 int., $ 3.00 étr.

ANALES de la Facultad de ciencias juridícas y sociales. v. 1, 1935. sem. Santiago. (Universidad de Chile).

ASIATICA Bollettino dell'Istituto italiano per il medio ed estremo oriente. v. 2, 1936. bimestr. Roma L. 10 int, L.15 étr. [Formely: « Bollettino dell'Istituto...].

BANCO do Brasil. *Boletim estatistico.* nº 1, 1935. irr. Rio de Janeiro. (Secção de estatistica e estudos economicos). [Bilingual edition Portuguese and English].

BANCO central del Ecuador. *Boletin mensual.* v. 9 1935. Quito.

BOLETÍN agrícola. v. 6, 1932. mens. Medellín (Colombia). (Sociedad Antioqueña de agricultores).

---

(1) Previous list June 1936. To be continued December 1936.

(2) List of abbreviations. bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months), déc. (every ten days), étr. (foreign price), f (copy); hebd. (weekly); int. (home price); irr. (irregular), mens. (monthly), nº (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); v (volume); trim. (quarterly).

(3) Between brackets [] are given translations and explanatory notes not appearing in the title of the review.

Boletín de la Asociación venezolana de productores de cacao. v. 1, 1936. mens. Caracas.

Boletín de la Dirección general del estanco de alcoholes y administración del impuesto al tabaco. v. 1, 1935. mens. Quito.

C N A. Revista del Centro nacional de agricultura. v. 1, 1936. mens. San Pedro de Montes de Oca (Costa Rica).

Colombia. A monthly magazine published under the auspices of the Colombian-American chamber of commerce. v. 14, 1935. New York City. $ 3.00 p. a.

Economic record. v. 4, 1928. sem Melbourne. 10s. (The Economic society of Australia and New Zealand).

Estatisticas economicas. v. 1, 1935. trim. Rio de Janeiro. (Directoria de estatistica economica e financiera do thesouro nacional. Ministerio de fazenda). [Edition in three languages: Portuguese, English and French].

Federal register, v. 1, 1936. q. Washington, D. C. $ 10 p. a. (Division of the Federal register, National archives).

Foreign trade statistics. n° 133, 1936. mens. Baghdad. Dinar 1 p. a. (Ministry of finance. Department of customs and excise). [Formerly: « Customs circular »].

Government publications. 1936. mens. London. (H.M. Stationery office). [Cumulative: « Monthly list of Government publications » and « Monthly circular: a selection from recent publications »].

Indépendance belge. v. 106, 1936. q. Bruxelles. [Cumulative, since 1st July 1936, « Neptune »].

Industria y comercio de México. v. 1, 1936. mens. México, D. F. (Oficina de propaganda y publicidad. Secretaría de la economía nacional).

Información económica y estadística de Colombia. 1936. mens. Bogota. (Contraloria general de la República). [Formerly: « Boletín del Departamento de contraloria »].

Junta nacional del algodón. *Boletín informativo.* 1936. mens. Buenos Aires. (Ministerio de agricultura).

Kon'iounktournyï bioulleten journala « Mirovoe khoziaïstvo i mirovaia politika » n° 1, 1936. mens. Moskva. [Bulletin of the trade cycle of the "Review of the world economics and politics"].

Land settlement. 1936. irr. London. (The Land settlement association).

Lighter. v. 5, 1935. trim. Ottawa. (Tobacco division, Experimental farms branch, Dominion department of agriculture). [Mimeographed].

Messo i mleko. (Fleisch und Milk. La viande et le lait). v. 1, 1936. mens. Sofia. 80 Lv. int.; 150 Lv. étr. [Title and contents in German and French also].

Notiziario economico della Federazione nazionale fascista degli industriali dei prodotti chimici e de *La Chimica e l'Industria.* v. 1 (s. 2), 1935. mens. Milano. [Numbers 1 to 6 (s. I) appeared under the litle: « Bollettino d'informazioni ». Supplement to « La Chimica e l'industria »].

Observador economico e financeiro. v. 1, 1936. mens. Rio de Janeiro. 60 $ p. a.

Revista de agricultura de Puerto Rico. v. 27, 1936. mens. San Juan. $ 0.50 int.; $ 1.00 étr. [Publication discontinued in June 1931 (vol. 26, n° 12), and temporarily repeaced, since 15th of August 1931 to 9th of April 1932, by « Boletín agrícola »].

RIVISTA di storia economica. v. 1, 1936. trim. Torino, L. 40 int., L. 60 étr.

STATISTIKA vnechneï torgovli SSSR. 1936. mens. Moskva. RB. 72. (Glavnoe tamojennoe oupravlenie. Vnechtorgizdat.) [Foreign trade statistics of the U. S. S. R Central Customs Office)]. [Formely: « Vnechnaia torgovlia soiouza SSR. »].

TEXTILE raw materials. 1935. hebd. Washington, D. C. $ 1.00 int.; $ 3.00 étr. (Bureau of foreign and domestic commerce. Department of commerce). [Mimeographed].

TEXTILIA « Le Industrie tessili ». v. 11, 1936 mens. Milano. L. 40 p. a. [v. 1-7 appeared under the tile: « Le Industrie tessili »].

ZEMEDELSKO-stopanski vaprosi. v. 1, 1935. trim Sofia. 50 Lev int.; 200 Lev. étr. [Agricultural-economic questions].

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

NATIONAL STATISTICS ON FARMERS' INDEBTEDNESS: THE UNITED STATES CENSUS AND A NEW SWEDISH INQUIRY

(*A contribution to the problem of comparable international statistics of agricultural indebtedness.*)

SUMMARY. I. *Statistical Surveys of Farmers' Property.* Two different points of view. Data obtained by the "sample method" and by the census type of investigation. — II. *Methodological Principles for the Collection of Data.* Statistics of indebtedness in the United States Census of 1930. The narrow delimitation of the field of investigation. The Swedish survey of indebtedness in 1933. Extension of the field of investigation: kind of indebtedness and classes of debtors investigated. — III. *Utilisation and Presentation of the Data.* The relative importance of indebtedness. The "spread" or dispersion of indebtedness. Indebtedness according to the size of farms. Summary.

I. — STATISTICAL SURVEYS OF FARMERS' PROPERTY.

The United States Farm Census registers every five years the mortgage indebtedness of full owners of farm holdings. The last available data relate to the year 1929 (1). The Central Bureau of Statistics of the Kingdom of Sweden collected, for the first time, for the financial year 1933, the data relating to the indebtedness of *all* the Swedish farm holdings together with their assets and has just published the results of this inquiry (2).

Both these surveys are general surveys in a twofold sense. They relate to the indebtedness of all farm holdings (Sweden) or in any case to that of the most important category ("full owners" in the United States); in addition the range of the surveys is so far extended as to include not only the liabilities but also, and following the same method of return, the assets; the relative importance of the indebtedness may thereby be exactly and readily ascertained. The Swedish survey is to be considered as a special census of farmers' property and indebtedness alone, so that it contains only values expressed in national currency. The American survey has on the other hand the form of a general census, the object of which is to assemble all the characteristic features for the farm and for the working of the farm; among these one set of figures relates the amount of the mortgage indebtedness and the value of the real property.

---

(1) Fifteenth Census of the United States: 1930. Agriculture. General Statistics. Summary for the United States 1929 and 1930. (Reprinted from Vol. II, Agriculture. Gov. Print. Office, Washington, D. C., 1932.

(2) Jordbrukets Skuldsättning 1933. Statistiska Meddelanden. Stockholm, 1936.

Consequently, although both these surveys are general surveys, the Swedish survey represents a special study of indebtedness, while in the American one indebtedness occurs among other features some of which may perhaps be considered of more importance. Comparing the two, it becomes possible to discern the advantages of the methods employed in either whether for the enquiry itself or for the tabulation of results, and in particular to resolve the question as to the minimum which should be required of such general surveys, if they are to be used as the basis of international comparative statistics of indebtedness. This is all the more important, as up to the present there is little general and uniform material available in this field of agricultural statistics.

The greater part of the data available at present on farm indebtedness has been obtained by the " sample method, " by which, as distinguished from the procedure followed in taking a general census, relatively few farms are selected for enumeration; quite often, these inquiries are carried out with a completeness and precision scarcely possible in the conduct of general surveys. Typical enquiries of this kind are the annual reports of the Swiss Peasants' Secretariate which have been taken as a model by *Det Landøkonomiske Driftsbureau* in Copenhagen and by the *Allmänna Lantbrukssällskap* of Sweden (1). All of these tabulate the accountancy results of a limited number of farms for the purpose of ascertaining their earning capacity and thus include also data relating to the indebtedness of the farm holdings. Among other investigations of this kind there may be noted the *Betriebsergebnisse der Deutschen Landwirtschaft* (2), published annually, which have been used by the German *Enquêteausschuss* in its comprehensive account of farmers' indebtedness and agricultural credit conditions in Germany (*Verschuldungs- und Kreditlage der deutschen Landwirtschaft seit der Währungsbefestigung bis Ende 1928*) (3). This semi-official enquiry goes somewhat beyond the sample method, in so far as it selects the farms in accordance with the special chacteristics of the locality, the nature of the soil and the type of farming. In this way the farms reviewed form representative examples of certain types of farms and of certain local conditions peculiarly characteristic of German agriculture. On the other hand there is not to be found, either in this enquiry or in the investigations already mentioned, an exact indication of the *general* significance of the farms, groups, types and local conditions studied, that is to say, of their significance in relation to the agriculture of the country as a whole.

---

(1) Schweizerisches Bauernsekretariat Untersuchungen über die Rentabilität der schweizerischen Landwirtschaft, Brugg. Det landøkonomiske Driftsbureau: Undersøgelser over Landbrugets Driftsforhold København. Meddelande från Kgl. Lantbruksstyrelsen: Råkenskapresultat från Svenska Jordbruk, Stockholm. See also: Undersokning av Lanthushallningens Räntabilität i Finland. Helsinski.

(2) Deutscher Landwirtschaftsrat, Veröffentlichungen. Berlin.

(3) Ausschuss zur Untersuchung der Erzeugungs- und Absatzbedingungen der deutschen Wirtschaft. II. Unterauschuss (Landwirtschaft), Bd. XII, Berlin 1929.

The most important objection that can be made to this kind of survey relates, consequently, to the selection of farms. In most cases the farmer's obligation or rather his willingness to reply to the questions addressed to him will depend on the fact of his being a member of the organisation making the enquiry. Membership of a farm accountancy association, for example, does not, however, depend upon whether the member's farm represents a fair average type from the statistical point of view, but on the desire of the farmer to conform to the model standard of accountancy the association is advocating as a means to further economy and thrift. Accordingly such farms alone come under investigation the working of which reaches a high level of scientific management and on which the results, as shown by the accountancy, tend as a rule to be above the average. It is none the less true that, by the sample or similar methods a large range of precise statistical data, especially on the working of farms, can be obtained which it would be hard to obtain otherwise. No such favourable results can be expected, however, if conclusions are to be drawn from the results of enquiries as to the general conditions of the agriculture of a country. Statistical knowledge of these conditions is commonly based upon average figures arrived at by inquiring into the soil-condition, acreage, production, live stock, etc. of *all* farms or, at any rate, of all farms within a certain district or category of farms (according to size, type of farming, etc.). The results of surveys by the sample method, however, do not fit in with this framework at all, since the sample does not contain in itself a criterion of its representative value for the farms taken as a whole, and indeed cannot contain it. For national systems of agriculture this disadvantage may sometimes be remedied by comparing the locality, the size and the type of the farms forming the sample with the corresponding data of the general statistics, thus determining in a roundabout way roughly their representative character. For an international comparison, however, this expedient cannot be employed, since the principle on which the selection is based in the various enquiries remains, statistically speaking, undefined. From a strictly methodical point of view there is consequently no possibility of rendering the very bases of sample surveys comparable to each other or of expressing any well grounded judgement as to their comparability. This is an inherent defect and therefore cannot be remedied by any general statistics of whatever nature brought in from outside.

This statement however is not intended to maintain that the results of surveys made on the sample method can *in no circumstances* be the subject of international comparisons; but we do maintain that the extent to which such comparisons can and should be made does not admit of exact proof, and that their results therefore will often be rejected on purely methodical grounds. Only in such cases, where a general correspondence occurs in respect both to the methods of enumeration employed and of the general farming structure of the different countries concerned, this criticism will not be justified. Thus we regard it as quite possible immediately to draw parallels between the results of the Swiss, Danish, Swedish and probably also the Finnish inquiries mentioned above, because, in the first place, these inquiries have been carried out by very similar methods and by very similar organisations, and, in the second place, because these three or four countries are characterised by a prevalence of family farm holdings of the medium-sized category, and accordingly exhibit very marked resemblances in the general structure. But already the surveys made by the German *Landwirtschaftsrat* and the *Enquêteausschuss* could not have been brought into direct comparison with these other countries, except with certain reservations, allowing only certain districts and types of farms to be alluded to. On an international scale, however, such direct comparisons seem completely doomed to failure, since the methods of the enquiries as well as the structure of the agricultural regions concerned do not admit of a common denominator.

The case would be somewhat different, if in view of the solution of a well defined problem—as for instance that of indebtedness—a certain number of farms of a typical average character were selected and studied, it being understood that the institution making the enquiry should proceed on the basis of characteristics supplied by general statistics. Such investigations have been made in the United States, utilising the census results, but not, so far as we are aware, for indebtedness. Even, however, if there were available a larger number of such investigations for the agriculture of different countries, each of which might be regarded as thoroughly representative, there would still be serious methodological difficulties arising from the differences in the general statistics of each country and the way in which these had been used as determining the representative character of the selected farms in each case. These difficulties could be overcome only in the case of a world census of agriculture. For the materials at present existing and available, it holds good, therefore, that surveys made on the sample method are suitable bases for direct comparison only when there is a similarity in the structure of the national farming systems and when the enquiries have been based on similar principles; if the structure of the national agriculture greatly differs in the different cases, then conditions cannot, at least up to now, be compared in any satisfactory way.

The census of the United States and the Swedish survey are not open to these objections. As they cover all or in any case a large number of farms, the individual differences which exist between the separate farms cancel out in the results and only the general conditions are observable; the difficulty in regard to the representative value of the results is thus eliminated by the very fact of the range of such surveys. Furthermore, it will also seem unnecessary to bring in other statistical material for the purpose of interpreting its results for the following reason: The significance of indebtedness (whether for the farm or the national economy) can be shown only by relating the amount of debts to the value of assets. Every general survey assumes therefore the character of a census, including all or at least the most important items of farm property. In this way, it supplies *in itself* the data necessary for establishing size classes of holdings or types of farming into which the figures of indebtedness may readily be inserted. Thus, according to its basis and statistical tendency, every general inquiry into farm indebtedness represents a statistical unit, which within the limits of the region to which it is applicable supplies unequivocal results. These enquires do not differ from each other by the greater or less representative value of their original material and of their results, but only by the methods followed in making the survey and in compiling the results in each case. The inherent and main difficulty of the international comparison is, in method and principle, the same as that which has to be taken into account in all international comparisons of statistics of population, production, trade and prices.

In a certain degree the differences, and correspondingly the difficulties, of the comparability betweeen national enquiries into indebtedness are less than in the cases just mentioned. Indebtedness assumes in all civilised States a definite legal form which finds its expression either in well defined security constituted in favour of the creditor (mortgage, pledge, bill of exchange), or in equally well defined rights of recourse against the debtor (personal debts, personal security). However great the national differences in regard to juridical consequences arising out of the creditor's vested rights may be, the sum due is everywhere established in an unequivocal manner, and the most important basis is thereby secured for the statistical enquiry. For all cases of real security this also holds good for the corresponding items of the property so that at least the most important items on both sides of the balance sheet are numerically fixed. This is especially important in the case of mortgage indebtedness which constitutes by far the larger part of farm debts. Since the mortgage is on the land of the farm, the value of this must be estimated as exactly as possible at the time of the contraction of the debt. Mortgage credit banks and insurance companies, most of which are obliged by law to keep their loans within a certain percentage of the real estate value of the farm, have set up quite elaborate methods for the ascertainment of land and farm values. Hence for our purposes there is no need to raise the somewhat troublesome question whether by value of the farmland and type of debt the same thing is to be understood in the case of two separate enquiries. This question may be answered in the affirmative, as we are not concerned here with the problem of correct definitions, but only with the question whether and how far the data supplied by the farmers are analogous and are in all cases exact.

Thus the first important difference between the Swedish and the American statistics of indebtedness that has to be studied is that of the *range* of debts and of property values on which information has been required; the assumption is that " mortgage, " " land value, " " farm stock, " etc., refer in the two cases to the same objects. The enquiry may be confined therefore to the questions how far the two surveys cover all types of debts and all the property values and what are the consequences that follow from any limitations that may be imposed on the field of the survey.

II. — METHODOLOGICAL PRINCIPLES FOR THE COLLECTION OF DATA.

A. — *Statistics of Indebtedness in the United States Census of 1930.*

The United States Census deals only with a single type of farmers' indebtedness, namely the mortgage. Its importance for agriculture as a whole, or rather for the part thus indebted, is set forth, in the first place, from the general point of view of the *frequency* of mortgage indebtedness. The relevant question in the enquiry schedule was worded as follows: " If you own all or part of this farm, was there any mortgage debt on the land and buildings so owned on April 1, 1930 ? " Thus, the category of farmers from whom an answer was expected was limited to those who either owned all the farm land worked by them or else farmed some rented land in addition to their own. To this category of " owners " (as it is styled throughout the Census) there belonged about 56 per cent. of all farms and of arable land. It was for this class only that the fact—but not the amount—of mortgage indebtedness was established. In consequence, there appeared under the headings " Free from mortgage, " " Mortgaged " and " No mortgage report " in each case only the number of " owned " farms for every administrative or geographical unit and finally for the Union as a whole. The more special question as to the *amount* of the mortgage debts was addressed only to the " full owners " farming their own land, *i. e.*, only to those who worked no rented land in addition. These in 1930 included about 46 per cent. of all farms and about 43 per cent. of all farmed land. For tabulation purposes the records were again classified into those showing no mortgage report or being free from mortgage or finally stating the amount of the mortgage debt. It is to this latter group only, comprising about 60 per cent. of the full owners and representing some 18 per cent. of all farms, that the Census for 1930 gives fuller particulars as to their indebtedness; for this group alone is shown the amount of mortgage debts, the area of the farms and their value (land and buildings), and for this group only relative figures indicating the significance of the debt burden are given, *viz.*, the ratio of mortgages to the value of the farm land (including buildings), the amount of debt per indebted farm and per acre of farm land. These data are set out for the usual administrative and geographical subdivisions, but are not classified according to the size of the indebted farms nor with regard to their type of production.

It may be a matter of surprise to find that the American Census covers in its section on farmers' indebtedness 18 per cent. only of all farms, although the primary material was established in the course of a nation-wide enumeration covering all farm enterprise. But no restriction whatsoever was made in regard to the scope of the enumeration; if its results in respect to farmers' indebtedness do cover only about one fifth of the farms, this is solely due to the extremely rigid conception of mortgage indebtedness as the sole object of the enquiry into debts. From this strict definition there follows first the elimination of all farms not burdened with debts within the group of full owners, such proportion being about 40 per cent. of the whole group. This procedure is in itself entirely justified, but it does not bring out with sufficient clearness the structure of the indebtedness of agriculture *as a whole*, since this can only be recognised and judged on the basis of the relation between *total* debts and *total* assets (or total farm values). We shall have to return to this point in another connection, when dealing with the question of scientific tabulation and utilisation of the material collected.

In regard to the principle adopted for the survey, another objection may be urged here, namely, that the mortgage indebtedness thus established cannot and does not represent the *whole* of such indebtedness, since mortgages on rented lands, as well as on all farms that include some rented lands, have escaped being recorded in the survey. It would seem there is here to be found an over-rigorous application of the two fundamental principles of the American Census which are: to have the farm operator alone fill up the enquiry schedule, and further to exclude all questions relating to conditions arising out of the fact of any external ownership claim or right exercised over the farm thus worked.

The result is, firstly, that the census does not supply any information of the mortgages on farms consisting exclusively of rented lands, nor on mortgages on those worked by managers, since the *operators* of these farms could not be compelled to declare a mortgage which they had not themselves contracted. But why could not the *lessor* be called upon to state the amount of mortgages contracted on farm lands leased by him to others ? Undoubtedly, considerable difficulty would have been encountered in securing these data in so far as absentee owners were concerned. But it might well be asked why the parcelled-out estates of the Southern States have been neglected also: quite frequently the owner still farms a part of the former plantation and or passes over to his " croppers " the live stock necessary for the farming of the leased portions. Being himself actively engaged in farming he might very well be required to declare the mortgage indebtedness on all land belonging to him, and the more so, as the census of 1930 otherwise furnishes a very informative survey of the somewhat complicated conditions of tenancy prevailing in the South.

It is, secondly, equally difficult to understand why there has been no attempt to establish for part owners the mortgage debts contracted by them on those portions of their farms which actually belong to them. It might be objected that for the sake of completeness it would then be necessary to register also the mortgage on that land which is rented in addition, and since this information could be required only by the lessor there would be always *two* replies on the mortgage indebtedness for every farm belonging to a part owner, this would render more difficult both the survey and the utilisation of the data obtained, the more so as the land value would have also to be returned twice. The actual circumstances are however as follows: filling out the census questionnaire, a farmer who has rented out some part of his land to his neighbour (and apart from the South this is by far the most frequent case) will very seldom feel obliged to cut down the amount of this actual mortgage by a slice corresponding to the value of the land he has leased, even when this should happen to be included in the mortgage. We are rather of the opinion that the full owner, with very few exceptions, always declares the total amount of the mortgage debt he has contracted whithout considering if he has leased some part of his land. Consequently, the total indebtedness of all " owned " farms would be arrived at within narrow limits of error by simply adding together the mortgages recorded by the full owners and those recorded by the part owners, leaving out of account only the indebtedness of farms either rented off in full or worked by a manager. This argument holding true, it still might be objected that, for calculation of farm land values a double series of data would be necessary. But this objection is met by the fact that the census of 1930 has positively established the farm values for *all* " owner " farms, including those of part owners. This fact justifies once more the question asked above: why have the part owners had to declare the value of their farms, but not the amount of their mortgages ?

In any case it is reasonable to expect of a census of model type, as is the American, that it should include as complete a return as possible of mortgage indebtedness and that it should not abandon the comprehensive character, so marked in every other respect, in favour of a principle of enquiry too rigidly applied (1).

While the circle of persons under the obligation of declaring their farm indebtedness is thus defined and limited by the rigorous interpretation of the relationships constituted by the mortgage itself, there is a corresponding limitation in respect of the assets. For the statistics of indebtedness the farm land values (including buildings) were required only in the case of full owners who had contracted mortgages, since they alone had any indebtedness to record. No attempt was thus made to deal with the value of farm stocks, nor with land values in the case of part owners and full owners who had no mortgage indebtedness. It is true that at another point in the census the land values and the values of farm stocks are given in full, but unfortunately it is impossible to compare these data with the mortgage indebtedness, since instead of these values having been given separately for the group of full owners alone, they have been given in block with those of the part owners. In consequence it is not possible to determine the importance of the mortgage indebtedness for the *entire group* of full owners, but only for those whose farms are burdened with mortgages.

It may be noted from here onwards that thus the data of the American census establishing the significance of the mortgage debt (*i.e.*, in its relations to farmland value) cannot be compared with the corresponding figures of the Swedish survey, since these latter are based on the land values for *all* fully owned farms. As will be explained later, the procedure followed in the Swedish survey is to be preferred in so far as the American census seems in this respect to rest on too narrow a basis.

B. — *The Swedish Survey of Indebtedness in 1933.*

The Swedish statistics of indebtedness are on a much wider basis than the American ones. The Bureau of Statistics required *all* persons deriving any sort of income from owning or cultivating land to make a full declaration of their assets and their debts, including not only debts on the farm but also the personal liabilities of the farmer or owner. The conceptions of assets and of debts were consequently applied in the widest possible sense. For the tabular classification of the data obtained the amounts relating to the farms themselves were shown separately from the total amounts. The *debts* were thus classified as follows:

---

(1) It is felt that this criticism is not merely justified but one which needs to be made since the limited basis of the American survey renders unnecessarily difficult the comparison of the mortgage indebtedness of the United States with that of other countries (*e. g.*, Sweden). This restriction would seem moreover to be the expression of uncertainty on the part of the Census Bureau itself as to the correct method of the same 1930 census. In proof of this reference may be made to the corresponding question in the 1925 Census, which differed noticeably from that of the 1930 census. In 1925 every owner of cultivated land was required to state the amount of the mortgage on this land, equally whether he worked the land himself or rented it to tenants, either in whole or in part. It would be of interest to know why the Census Bureau abandoned this fuller form of drafting the question in favour of the form dealt with in the text.

1. Total amount of debts contracted by the farmer or owner. In this is included:
2. Total amount of debts contracted for the farm itself and for its working. These are divided into:
    (*a*) Mortgages without additional guarantee;
    (*b*) Mortages with additional guarantee (usually personal surety);
    (*c*) Liabilities against personal surety;
    (*d*) Loans on chattel pledge;
    (*e*) Debts against bills of exchange;
    (*f*) Other borrowings and debts.

Only those indicated here under 2 (*a*) and 2 (*b*) are shown in the American Census.

As the survey of indebtedness extended to all holders and owners of farms, these had to be placed in clearly distinguished groups for purposes of the summary. As criterion of differentiation the form of land tenure was adopted. The scheme for debt classification was thus made to correspond to the following five groups of persons:

1. Owners renting out all of their land (absentee owners). These can only declare any mortgage there may be on their land. In the American census this group was not represented.
2. Farmers in full ownership of the farms cultivated by them. This group, the most important of all, declares all types of debt. In the American census the corresponding group is that of full owners but these are there required only to declare mortgage indebtedness.
3. Tenants and managers who own no part of the land they cultivate. Naturally these cannot declare mortgages, but only other types of debts. This group does not appear at all in the American debt survey.
4. Farmers who rent, as tenants, less than half the land they cultivate.
5. Farmers who rent more than half of the land they cultivate.

These two latter groups declare, in both cases, all types of debts, but mortgage indebtedness only in so far as burdening the land they actually own. The American census combines these two groups in one as part owners, and requires from them only the declaration of the *fact* and not of the *amount* of the mortgages, and no declaration of other debts.

The farms forming part of each of these five categories are again grouped by size, *i. e.*, according to their *value* (land and buildings) The very basis for this classification is found in the primary material of the survey itself, since the farmer had been asked to give a full account of his assets, among which the real estate value forms naturally the most important item. Indeed, he was also asked to give the acreage of his farm, but these figures have not been used for classification purposes, the aim being not only to have the data themselves recorded in terms of value alone, but also to build up the statistical categories used for their tabulation and presentation on the same ground.

Owing to its wide basis and the marked differentiation shown in the grouping, the Swedish survey not only represents a valuable contribution to Swedish agricultural statistics but it also lends itself to the concrete analysis of general problems of farm management (1). From this point of view it may even be said that it approaches the ideal of a statistical survey. It is however precisely because of these qualities that it cannot be recommended for imitation in a general way. So detailed an interrogation of the farmers is possible only in countries which are relatively small and inhabited by a rural population of high intellectual level. Also, it is probable that few States have sufficient funds at their disposal for so closely differentiated an elaboration of the material, or are inclined to undertake it; even in Sweden for the same reason a repetition of the survey is not to be contemplated in the near future. On the other hand, it fulfils the requirements from the standpoint of international comparability in a much higher degree than does the American census. If it were feasible to simplify the methods of the Swedish enquiry, without altering its fundamental character, it would be possible to define more exactly the requirements essential to the attainment of the ideal of international comparability.

This can easily be done. The extent of the limitations imposed on the attainment of such an end relate to:

I. — The scope or range of the survey of the *types of debts.*

(*a*) The question of the total indebtedness. In our opinion this may be disregarded, since it belongs by its very nature rather to a general census than to a special agricultural one.

(*b*) The division of mortgage debts into those with and those without additional surety. The introduction of this distinction into the Swedish survey is explained by conditions peculiar to Sweden where a special importance attaches to the additional personal guarantee.

(*c*) The detailed sub-division of debts not secured by mortgage. This appears unnecessary, as even a still more detailed subdivision than the Swedish would not allow of a complete classification of all these debts.

A more general consideration follows from the above as to the " correct " classification of debts. As criterion of distinction, all these surveys make use of the *legal form* of the debts (mortgage, personal debt, bill of exchange, debt on the security of a pledge, etc.). If this criterion were consistently applied, it would involve the enumeration on the enquiry schedule of nearly all the possible forms of borrowing and of credit. Since this is in practice impossible, there remains only to subdivide the debts into the two main groups of debts secured by mortgages and others not so secured. This solution is however far from satisfactory, since among the debts not secured by mortgages are those which, from their place in the farm economy do still form part of the liabilities secured by the value of the farm.

---

(1) It is thus that the writer of this article has endeavoured, on the basis of this material, to arrive at an exact statistical representation of the relations existing between the type of farm, and the structure of the indebtedness and the assets. He believes that he has arrived at results which in their interest pass beyond the local and national limits of the material used, because the Swedish statistics of indebtedness refer to the structure of a *typical* peasant farming country.

Such are especially the debts which, following on a change of ownership, have not been registered as mortgages because of the ties of near relationship existing between the creditors and the farmer who is their debtor; the case is usually one of the settlement of an inheritance between brothers and sisters, but may also arise in connection with the transfer of a farm to a son in the lifetime of the parents, which is often effected by verbal agreement or by a simple acknowledgement of debt. From the standpoint of the farm these debts have nothing in common with the other types of non-mortgage liabilities; these latter arise out of the ordinary requirements of the farm, while the former are connected with the condition of ownership in the soil; the two are brought into the same category merely because of the legal and negative characteristic, *viz.*, that the debts of neither type are secured by mortgage. From the standpoint of the farm, all debts arising from change of ownership whether or not secured by mortgage, should be brought under a single heading. As second group there would be found all debts incurred for long term investments in the farm, such as improvements, buildings, enclosures, etc. The third category would then include credit for current farming operations without taking account of the different forms of this. Such a classification would adopt as criterion, in place of legal forms, the object or purpose for which the debts were contracted and might thus better fulfil the requirements of *economic* statistics. Unfortunately it is not possible to base a survey of indebtedness on such a formula, because the debts of the first and of the second group are at present so generally secured by mortgages that, in the majority of cases, it is no longer possible to distinguish them according to their purpose: owing to the instrument of security constituted by the mortgage, debts arising out of a change of ownership and long term borrowing for productive purposes have become one and the same thing, especially for the owner who farms his own land (1). Hence all that is possible practically is to consider mortgages as representing both classes of debt, but then this indebtedness has to be supplemented by debts arising out of change of ownership but not secured by a mortgage, that is to say, in the enquiry schedule an additional question must be included in reference to this kind of debt (2). All the other debts may then, with a high degree of probability, be considered as true farming credits arising from the current farming requirements.

The form of the survey would then be as follows:

1. Debts secured by mortgages.
2. Long term obligations resulting from change in ownership in so far as these are not already included in the mortgage liabilities.
3. All other debts, whatever their legal form.

---

(1) In illustration of this fact, reference may be made to the procedure of many Danish family farmers; on assuming ownership of the farm they take out the highest possible mortgage on the land, pay out their brothers and sisters, or the former owners, in full, and put the remainder into their strong box or into the savings bank.

(2) This is precisely what was done by the Swedish Central Bureau in consequence of the surprisingly large total under the heading " Other debts and borrowings, " a supplementary enquiry form being addressed to the farmers who had filled up the previous schedule. It may be of interest to learn that in this way it was possible to establish that about one sixth of the debts not secured by a mortgage were debts contracted in consequence of a change in ownership.

The sum total of these debts represent the farm indebtedness; groups 1 and 2 both belong to the type of " real " liabilities or those secured on the land, from which there is to be sharply distinguished the group of credits for current farming operations.

II. — In addition to limiting the range of debts enquired into, it is possible to narrow the circle of persons interrogated even more than is done in the Swedish enquiry, while maintaining the principle of classification according to the system of tenure of the soil. The limitations practicable in this respect relate to:

(*a*) The group of owners who do not cultivate any part of the land they own. This group might, in our opinion, be completely omitted; instead tenants and managers should be required to ascertain from their lessors the total of the mortgages on the cultivated lands rented by themselves.

(*b*) The distinction of the tenants who rent less than half of the area they farm from those who rent more. The two groups might be combined into a single group which would correspond exactly to the class of part owners in the American Census.

In this way the basis of the enquiry would be limited to three types—instead of five—of persons, without losing any of its actual scope; these three groups would correspond with those of the American Census (though not precisely with the grouping in its section dealing with indebtedness). These groups are:

1. Owners of the whole of the farm cultivated by them, corresponding to the full owners of the American census.
2. Owners who have rented additional lands (part owners).
3. Tenants and managers.

In consequence of the close connection which holds between the types of debts on the one side and the kinds of property or assets on the other a wider range of types is allowed for recording the assets in the Swedish survey than in the American. The Swedish classification is as follows:

1. The total assets of the cultivator or the owner, corresponding to the total of his debts. In the American census this item finds no place.
2. The land value, including the buildings, which should be assimilated to the " Value of Farms (Land and Buildings) " in the American Census.
3. The value of the dead farm stock; in the United States Census (*i. e.*, in the general census and not in the indebtedness enquiry in which this item does not appear) " Value of Farm Implements and Machinery. "
4. The value of the live stock; in the United States Census: " Domestic Animals, Chickens and Bees. "
5. Stocks and stores of cereals, forage, etc. This item does appear in the United States Census.

Since the types of debts and the classes of assets tend to correspond to each other, the objections raised above as to the range of the enquiry into debts hold equally good in respect of the enquiry into assets. In consequence the enquiry as to total assets may be regarded as superfluous. In the same way, it does not seem to be necessary to require information on warehoused stocks, unless a separate return of the credits made on guarantee of these stocks is asked for. A survey of indebtedness may, in our opinion, very well be confined, on the one hand, to the real estate (including buildings) values, and on the other to the farm stock, distinguishing live from dead stock. In the real estate value there should however be a separate indication of the value of the land not utilised for farming purposes; but probably it would not be practicable to establish a limit sufficiently strict except in the case of land covered with forest. This is undoubtedly important for the further reason that, in the majority of countries, lending operations secured by a forest or by forest lands are effected under forms of credit which differ from those followed in the case of arable land.

We should thus arrive at the following plan of the survey in respect of the capital and indebtedness structure of farming:

Assets.	*Liabilities.*
1. Real estate value (including buildings) so far as possible exclusive of forest land.	1. Debts on real estate property including: (*a*) mortgage liabilities; (*b*) liabilities due to change of ownership not secured by mortgages.
2. Value of the live and dead stock.	2. Credits for current farming operations without special distinction.

These data would be shown separately on the tables for the following three groups: 1. Full owners; 2. Part owners; 3. Tenants and managers.

This scheme for the returns and classification of the original data of a survey of indebtedness appears to satisfy the requirements of economic statistics and at the same time could be carried out in practice without any special difficulties. It would be applicable to the most important elements of farm indebtedness and would furnish a suitable basis for international comparisons.

III. — UTILISATION AND PRESENTATION OF THE DATA.

A. — *The Relative Importance of Indebtedness.*

Every general enquiry into indebtedness has a tendency to become a more or less comprehensive census of property. As previously noted, it is only in this way that it is possible to take account of the relative weight of the indebtedness and of its importance as factor in the farming situation. As a measure of this relation there is everywhere employed the amount of the assets to which the sums owed are referred. For the American census and for the Swedish survey the differing scope of the enquiry gives rise to the following differences in the calculation of the percentages of indebtedness (the sum of the debts divided by the value of the assets):

The American census relates the total of the mortgages to the farm values (land and buildings) of the mortgaged farms, alone.

The Swedish enquiry relates:

(*a*) the total sum of all the debts to the total sum of the assets of all farms (percentages of *total* indebtedness);

(*b*) the farm debts to the sum of the farm assets of all farms (percentages of *farm* indebtedness);

(*c*) the mortgages to the sum of the values, of land and buildings of all the farms (percentages of *mortgage* indebtedness).

From the criticism made above as regards the scope of the Swedish enquiry it would appear that the calculation of the percentage of total indebtedness indicated under (*a*) has little to recommend it. Furthermore the Swedish survey seems to make better use of the data, and with more consistency from the statistical standpoint, than the American census, regarding the determination of the percentages of farm indebtedness (*b*) and of mortgage indebtedness (*c*). Indeed, the American Census is under no obligation to calculate percentages of farm indebtedness, since no figures have been collected for the totals of farm debts. But even within the narrower limits of calculating the mortgage indebtedness, the Swedish method seems to us preferable, because it relates the mortgages—in contradistinction to the American method—to the values of *all* farms, thus including also those which are not indebted. From the standpoint of private economy, it is obvious that these debts should be related to the values of the indebted farms only. But if we are to compare different sets of averages each of which is intended to bear out the significance of indebtedness for a national or regional unit *as a whole*, then the basis of comparison should rather be a uniform one. This requirement is doubtless best met by taking into account *all* farms, *i. e.*, the total sums of mortgages as well as of farm values. The method followed by the American Census does not meet this requirement: an equally high percentage of indebtedness, for example, calculated on the basis of indebted farms alone, is far from representing *per se* an equally heavy debt-burden for the agriculture of two different regions, since it cannot be assumed that the values of the non-indebted farms constitute precisely the same part of all farm values in either case. In order to give a complete picture of the relative indebtedness, the average percentages of mortgage indebtedness must be amended by taking into account the farm values of non-indebted farms also, the simplest and most accurate way being to base the figuring upon the totals for all farms from the very outset of the tabulation.

The question, however, of how to handle properly the non-indebted farms within a statistical survey of indebtedness, remains still to be answered. The point of view of private economy can be neglected the less by the agricultural statistician, the greater the importance that is attached to the carrying out of farm management studies which are, as already mentioned, as much interested in the financial status of the non-indebted farms as in that of all others. For their sake, the figures relating to non-indebted farms should be given in full particulars. But also for the sake of studies, starting from the standpoint of national or world-wide economy, it is of decisive importance to ascertain not only the relative significance of indebtedness as a whole, but also to know how the indebtedness of a certain region or country is built up in the way of superimposed layers of different debt-ratios, the lowest comprising all non-indebted farms, the highest all over 100 per cent. indebted ones and the rest lying between these two extremes. Every statistician is quite aware of the fact, that a percentage ratio arrived at by taking into account a large number of data, may either signify the bulk of the cases involved—the average representing then a comparatively " dense " value—or else may bear only a more or less " abstract " meaning in cases where the primary material includes a large number of extreme data counterbalancing each other in the figuring done. In other words, the average ratio indicating the relative weight of indebtedness for *all* farms together needs to be more closely determined, in respect of its " dense " or " abstract " value, before it can be taken as a real expression of the relative indebtedness of a group of farms. This determination is made most simply by a grouping of the farms included in the average according to their individual percentages of indebtedness, that is to say, by means of indicating the " spread " of these percentages round the average ratio referring to *all* farms.

B. — *The " Spread " or Dispersion of Indebtedness.*

The American Census does not contain data on the " spread " of indebtedness. By excluding the non-indebted farms one of the principal elements in such spread has been avoided and it was no doubt believed that by doing so it was possible to ignore the question of the spread or dispersion altogether. On the other hand, on the basis of the Swedish data comprehensive tables have been published, showing how the farms included in the calculation of a general average (1) were distributed according to their individual percentages of indebtedness. For the sake of a clear representation, all the possible debt-ratios have been drawn together into seven classes, *viz.*, non-indebted, indebted up to 10 per cent., between 10 and 25 per cent., between 25 and 50 per cent., between 50 and 75 per cent., between 75 and 100 per cent. of the assets; the seventh and last class consists of farms indebted by more than 100 per cent. Under these headings there appear the number of the farms the relative indebtedness of which lies within the limits indicated. The sum of the numbers entered under these headings naturally is equal to the total number of all the farms the debts and assets of which have been used for the calculation of the average ratio of their indebtedness. In this way the spread of the percentages of the total as well as of the farm indebtedness is calculated and represented; the mortgage indebtedness, however, is neglected. Nor are indications supplied as to the amounts of the debts and assets of those farms which belong to the separate classes established according to the percentages.

The following example will show how these spread-tables are used: in the principal farming districts of Sweden and in the smallest group of full owners working their own land (up to a land value of 5,000 crowns) about 26 per cent.

---

(1) The grouping of farms into size categories according to land values will be discussed below in greater detail, since the full significance of the computation of spread appears only within the framework of such a tabulation.

of the farms were not indebted and nearly 17 per cent. were indebted for more than 100 per cent. of their assets; in the group of large farms with land value of more than 50,000 crowns the corresponding figures were only 6 per cent. and 7 per cent. respectively of all the farms. The consequence of this wide spread in the case of the small farms was that their average percentage of indebtedness of about 53 per cent. characterised only 15 per cent. of all farms (these 15 per cent. showing debt-ratios of between 50 and 75 per cent.), while in the case of the large farms the slightly higher rate of 56 per cent. characterised nearly 30 per cent. of the farms. Consequently the very small difference in the average indebtedness percentages of the two groups concealed a very different *structure* of indebtedness in each case, which was only clearly seen when the spread was taken into account; actually the representative or intrinsic value of the average percentage of indebtedness of the large farms was twice that of the small farms (1).

As will readily be inferred from this example, the representative character of an average percentage of indebtedness will be judged by calculating how many farms out of all farms show a debt ratio similar to that indicating the debt-ratio of the total. (We use the term " similar, " because the average debt ratio can be compared only to a *range* of individual debt ratios lying between certain limits, for example between 50 and 75 per cent. etc.). It is, however, not possible to assign to the farms grouped together according to their debt-ratios the corresponding sums of the debts and values themselves, the ratio of which forms the very basis of the grouping. In this way, the *weight* of these values in the calculation of the total average of indebtedness could have been established, giving thus an even better understanding of the qualitative structure of indebtedness. It is true that the Swedish statistics contain yet another set of " spreads " calculated on the basis of the values of *net* assets (*i. e.*, gross assets minus debts). In this case the assignment to the different groups is made according to the absolute values of the net assets, the grading of the groups corresponding to that of the size categories of the farms (see below); it is established equally for the cases of positive values of net assets (thus for all the farms with indebtedness less than 100 per cent.) and for negative values (thus for all farms indebted more than 100 per cent.).

Since the net assets have been calculated on the basis of *subtracting* the debts from the assets, the knowlede of their dispersion does not contribute directly to the further characterisation of the dispersion of indebtedness—being based on the *relation* (quotient) between debts and assets—, though the picture of the structure of the assets is thereby enriched by a feature of some interest. The same result, in our opinion, might have been attained more simply and more clearly by the expansion of the tables showing the spread of the percentages of indebtedness: the insertion into these of the actual amounts of the debts and assets would not only have more closely characterised the farms included in the different classes of indebtedness and their significance for the average debt-ratio of the group or class, but would also have rendered it possible to determine the net assets: the user of the statistics would have had merely the trouble of subtracting the debts from the assets. The present arrangement of the Swedish statistics seems to be not very clear, and utilisation is difficult as at the same time too much and too little is included. This holds also true in a certain measure for the tables showing the spreads themselves. The calculation of the percentages of *total* indebtedness has already been noted as superfluous, and accordingly the details of their spread is regarded as complicating unncessarily the work of compilation. Generally speaking, the calculation of spread-tables for a *single* type of debts should satisfy the requirements of economic statistics. The *type* of indebtedness to be selected necessarily depends in each case on the scope of the survey; if this is limited, as in the United States, to mortgage indebtedness, tables of spread can be calculated of course only for this type. From the discussion in the first part of this article, however, it will readily be inferred that in our opinion the total of the *farming* debts forms the most suitable basis not only for the calculation of the percentages of indebtedness but also for that of their spread.

---

(1) For reasons which cannot here be discussed in detail these marked differences of spread — or, what comes to the same thing, of the representative character of the average percentages of indebtedness — are to be taken as typical. This seems all the more to justify the demand that in the elaboration of the data enquiry into details of the spread and clear presentation thereof should not be omitted.

The question of the " right " method to follow in the calculation and presentation of dispersion is not an easy one to answer. In order to establish a standard deviation which would reduce the measure of the spread to a single numerical expression, percentages of indebtedness would have to be published for *all* farms. In a general statistical survey with its thousands of figures this is impossible, and moreover it would not even be expedient, since, for the economic interpretation, the relative level of indebtedness has in each case also a qualitatively different character, which completely disappears in the standard deviation which is the result of purely arithmetical operation. For evidence, it might be enough to recall the very different significance of the non-indebted farms and of those excessively indebted for the general debt situation of any particular farming area. We should, therefore, prefer the grouping by classes, or in other words, the *schematised* dispersion or spread, although from the standpoint of the statistical method it has the drawback that within the different classes or grades the percentages of indebtedness may be distributed with very little uniformity (for example, there may be a large accumulation either at the upper or at the lower limit of the grade). This might be remedied by establishing as many classes as possible, perhaps with a difference of 5 per cent. only, but this would greatly increase the labour required for the construction of the tables. On the other hand, a difference of 10 per cent. might satisfy even the strictest requirements while one of 25 per cent., such as is employed by the Swedish statistics (with the exception of the further subdivision of the first class) serves the purpose very well. The absolute minimum, the fulfilment of which must be emphatically required, consists in the indication of the non-indebted and the excessively indebted farms according to their number, the total amount of their debts and the value of their assets. This would at least bring into clear relief, as to their absolute extent and as to their importance for the establishment of average percentages of indebtedness, the two extreme groups of indebted farms which have so much significance alike for private as for national economy.

C. — *Indebtedness according to the Size of Farms.*

For the representation of agricultural statistics secured in the course of a nation-wide enumeration, the administrative units of the country concerned furnish the most convenient and often also the only subdivisions used. This, so to speak, horizontal classification has come to be supplemented, and in an increasing degree, by a vertical one planned in accordance with the internal structure of the items which are the subject of the survey. As characteristic of this vertical grouping, the essential structural element of the subject matter of the enquiry is chosen, in agricultural statistics foremost the size of the farm, measured by the extent of the farm area. The use of size categories seems, however, to be nearly everywhere confined to the representation of data on the distribution of farm land and on the conditions of farm tenure. More rarely are production statistics and particulars of the farming system thus treated and for classifying farm assets and debts, the criterion of farm size has up to now been employed only by the Swedish survey in a comprehensive way (apart from enquiries of the sample type). The United States Census, to be sure, is giving the distribution of farm *values* according to the size of farms; the *debt* statistics, however, are shown on the basis of geographical subdivisions alone. Thus, it is impossible to deduce from the Census, or to calculate with its help, the differences in the mortgage indebtedness (that is, the ratio of debts to assets) for the different farm size classes, unless indeed the land values and the debts are looked upon as being distributed among the different size categories just as are the farm values or the areas farmed. This could only lead to results of any certainty on the assumption that the land value and the debt-ratio are nearly the same everywhere and in all classes. As this assumption seems still less admissible for the United States than it would be anywhere else, it becomes impossible to analyse the conditions of indebtedness of American agriculture in accordance with the size of farms.

Here also the Swedish survey utilises its data in a more complete and more systematic way. Indeed, the grouping of farms by their area is also abandoned, but only in order to replace this principle of division by one far more suitable for the purposes of statistics of indebtedness. For the establishment of the size categories of farms the Swedish survey starts from the farm *value* (and not from the area), grouping in its first class all farms with land, including buildings, of a value up to 5,000 crowns; the second, third, fourth and fifth groups including respectively farms with land of a value of 5,000 to 10,000 crowns, of 10,000 to 25,000 crowns, of 25,000 to 50,000 crowns and of 50,000 to 100,000 crowns, while the last group includes the largest farms with a land value of more than 100,000 crowns. This classification is employed in the tabulation and presentation of all the data appearing in the statistics of indebtedness; as already noted, it was for these same groups that the dispersion figures of the debt-ratios were calculated also. As the single figure not being expressed in terms of value and not having been calculated by the help of such a value, the extent of the arable land of all farms within a certain value-class is given, and in so doing a grouping has been established according to land tenure (see Part I), *viz.*, land owned in full, rented in addition to owned land, or leased to other persons.

If it is agreed that the results of general agricultural surveys should be grouped by size categories of farms, the further requirement may well be admitted, namely that for the special case of statistics of assets and debts (and for these only) the criterion should be the land *value* rather than the area. In support of this opinion a special and a general reason may be given.

The special reason consists in the fact that the classification of farms according to their value affords the only reasonable framework for the representation of conditions of indebtedness. It has already been pointed out on several occasions that general statistics of indebtedness have a tendency to widen out into some kind of property census. This tendency entails, for the presentation of the results of the survey, the application of the economic category which is fully characteristic of the data in question and distinguishes them from other data of agricultural statistics: such a category is the value expressed in the national currency of each country.

The general justification of the classification according to value relates to the special position and function of indebtedness statistics in agricultural statistics as a whole. Any type of agricultural statistics, which groups its results according to size of farms, must of course proceed from the area farmed, but these may be shown either in units of area (thus in hectares, acres, dessiatines, etc.) or according to its value (thus in crowns, dollars, marks, etc.). Now, statistics of distribution of land ownership in particular are classified according to the extent of the area farmed. This is in accordance with the general idea which designates a farm as large when it includes much land, 'and when it does not, as small. By the same token, the statistics of land-utilisation, of the density of the live stock, of the employment of means of production of all kinds, and finally of agricutural production itself, may be more easily classified and brought into harmony with each other and the statistics of distribution of land-ownership, since it is by the extent of the area farmed that all these data are measured. None the less the grouping of farms according to their area has drawbacks, in view of the fact that the capacity of soil for agricultural utilisation greatly varies from district to district as well as between countries. In consequence, the more use is made of agricultural statistics for national and international comparisons the more detailed returns are required of land not in cultivation or without agricultural value (poor grazing and pasturelands, roads, built over parcels of land, etc.) and the less such land is taken into account when assigning farms to their size categories. Here the idea of " value " makes itself felt already in a general way. But it becomes more especially necessary to take it into account when the bases and results of farming activity have to be referred to the common denominator of all economic enterprise, *i. e.*, to money and value in money.

These considerations may be brought to a close by a general observation. For some long time past, the money analysis of farm management results has been considered as an instrument indispensable for scientific investigations into agricultural conditions. All that is proposed here is the transfer of this point of view to the methods adopted for the elaboration and presentation of surveys dealing with the relations of agricultural assets to debts. Statistical surveys conducted on the sample method have already followed this procedure, but there has been some hesitation in adopting it for general surveys of the census type. A complete re-orientation of the whole of agricultural statistics so as to base them exclusively on value seems neither practicable nor advisable, while to present the statistics on a double basis under quantity and value would require such an expenditure of labour that other parts of the work of elaboration would perforce be neglected. For the more limited range of an enquiry into assets and indebtedness, however, the application of the principle of value is found to be in the closest harmony with the character the data assembled.

D. — *Summary.*

It will be seen that the following requirements for the elaboration and presentation of the data of a general survey of agricultural indebtedness may thus be formulated.

(1) For the calculation of debt-ratios (debts divided by assets) the whole of the farms under review, or rather of the data supplied by these, should always be utilised; if, for example, the non-indebted farms are left out the results are no longer comparable with those of other surveys, even if those too leave out of count the non-indebted farms.

(2) On the other hand full particulars must be given for 'at least the debt-free farms *and* for those that are excessively indebted, it would also be desirable to extend this principle to all the groups of indebtedness, *i. e.*, to establish a schematic representation of the spread of the debt-ratios.

(3) For the tabulation and representation of the data according to size categories of farms, the basis chosen should be not that of area but that of value of land, as it is only in this way that the survey retains its definite character

It will be observed that in formulating these prerequisites, the requirements for the elaboration and presentation are both greater and stricter than for the scope of the enquiry and the comprehensiveness of the data themselves. This is fully recognised here. In our opinion, it is most essential to avoid wearying the farmer, or even arousing his suspicions, by too frequent and too detailed an interrogation. On the other hand it is felt that in the publications of central statistical authorities there is a tendency to pursue the methods of tabulation and presentation into the smallest details and thus to undertake unnecessarily burdensome calculations. The American Census and the Swedish survey alike offer many examples of this tendency, an outstanding one being the calculation of debt-ratios as well as of debt and farm values per farm and per unit of area even for the smallest administrative districts. It may be that such details are required by local interests, but for scientific work their utility is very doubtful, as the administrative unit can only very rarely be chosen as a basis of investigation that whenever several districts are studied together recourse must inevitably be had to absolute figures. However valuable may be the calculation of relative figures for the whole of a territory as well as for the larger subdivisions, for the smaller units the statement of absolute figures would seem to be sufficient. The example here given, which might be supplemented by others of the same kind, shows that by reasonably contracting the scope of tabulation work, some labour could be released for fulfilling the requirements formulated above.

Dr. RUDOLF FREUND
(*Stockholm*).

INTERNATIONAL TRADE IN MEAT

SUMMARY. — International trade in live animals. — International trade in beef and veal, in mutton and lamb, and in pigmeat. — The European importing countries — The United Kingdom the largest importer of meat — The decline of international trade in meat in recent years — Changes in the consumption of meat — Fall in consumption due to general economic crisis, rather than to restriction of imports — Increase of home production in importing countries. — Prospects in the international meat market

For some time past the International Institute of Agriculture has been engaged in making a study of international trade in meat. A Report on the subject was presented in a provisional form to the General Assembly of the Institute held in Rome from 5 to 11 October; this report is now under revision and will shortly be published in its definite form. It will be the second volume of a series of studies on the principal agricultural products on the world market.

The study is confined to the three kinds of animals that are most important for the meat supply, *viz.*, cattle, pigs and sheep, and to the meat derived from them. The number of countries that are really important in the international meat trade is comparatively small, but the general survey of the international trade in live animals and in meat of the three kinds ranges over a considerable number of countries. By this method of treatment the outstanding importance of a small number of importing countries on the one hand and of a small number of exporting countries on the other hand is clearly demonstrated.

Apart from the general surveys, the report contains special sections on the movement and structure of the foreign trade of the principal importing countries in meat of each of the three different kinds. In the case of pigmeat, sections are included on the foreign trade of the United States and Denmark, in view of the fact that the export of pigs and pig products from these two countries has played and still plays a decisive part on the world market.

In addition to the chapters relating strictly to international trade, there is a chapter describing in some detail the production and consumption of meat in the principal importing countries, *viz.* the United Kingdom, Germany, Italy, France, Austria, and Czechoslovakia.

Throughout the Report the year 1924 has been taken as the point of departure and the information given relates in the main to the years 1924 to 1935. Comparisons are, however, drawn with the pre-war period, in order to show to what extent the same tendencies may be observed in recent years as in that period. The war-period and the years immediately following the war are, for the most part, excluded from consideration as being abnormal and not likely to furnish data that would aid an observer in forming an opinion on the development of the meat trade.

International trade in cattle, pigs and sheep is carried on to-day, except in small volume and apart from breeding stock, between neighbouring countries or countries not very far from one another. As far as pigs and sheep are concerned, this was already the case before the war, there were, on the other hand, still considerable consignments of cattle from Canada and the United States to the United Kingdom in the ten years immediately preceding the war, though already, even in this period, the trade showed a distinct tendency to decline.

Owing to the fact that the trade in live animals now takes place only across short distances there is not a single world market in which any producing country can compete, but several regional markets. The most important of these is the European market, but there are other independent markets in North America, South America, South Africa and parts of Asia.

International trade in beef and veal and in mutton and lamb is for the most part across long distances. The proportion of fresh meat entering into the total trade is consequently not a high one. The greater part of the beef and veal entering into international trade is either chilled or frozen, the greater part of the mutton and lamb is frozen. The trade in beef and veal and in mutton and lamb is to-day confined mainly to an exchange between countries of the Southern Hemisphere (Argentina, Uruguay, Brazil, Australia and New Zealand) and a small number of European countries, notably the United Kingdom.

The trade in pigmeat is mainly across comparatively short distances, though there is also a certain volume of trade between distant countries. The proportion of fresh meat is small, international trade being for the most part in prepared pigmeat, primarily bacon and hams. Except for small quantities the trade is confined to the Northern Hemisphere, and more precisely to the United States, Canada and the European countries.

The decisive part on the international meat market is played by the European importing countries, not only on account of the volume of their exports, but also because on the European markets several countries compete with one another. By far the largest importer of meat is the United Kingdom and its imports have increased since the war not only absolutely but relatively.

It is also a large importer of live animals (particularly cattle) but such imports have rather tended to decline. The share of the United Kingdom in the aggregate excess of imports of all importing countries (with a few insignificant omissions) was as follows.

Years	Beef and veal	Pigmeat	Mutton and lamb	Cattle	Pigs	Sheep
1924	63 3	73 7	95 0	52 8	16 3	21 7
1929	67 9	83.6	93 5	31.6	13 5	16 2
1934	84 3	92 0	96 7	46 7	14 4	10 7

In view of the position of the United Kingdom the importance of the regulation of the imports of meat into that country from 1932 onwards will readily be understood. On this subject precise information will be found in the Report under notice (1). Full information is also given on government measures for the encouragement of meat production and the regulation of the meat market in the other countries that are large importers of meat.

A fact that is clearly brought out by the general survey of international trade in meat is that the trade has considerably declined in recent years. The fact is also apparent from the many statistical tables given in the text and in the Appendices. We here reproduce a summary table showing the excess of imports in the years 1924 to 1934 of the importing countries.

Excess of Imports of the Importing Countries.

Years	Beef and veal (thousands of quintals)	Pigmeat (thousands of quintals)	Mutton and lamb (thousands of quintals)	Cattle (thousands of head)	Pigs (thousands of head)	Sheep (thousands of head)
1924	11,159	7,004	2,756	1,929	1,419	2,657
1925	11,732	6,568	2,960	1,798	1,712	2,999
1926	11,022	5,928	2,954	1,768	1,992	3,887
1927	10,855	6,232	3,069	2,036	2,291	3,391
1928	9,442	6,251	3,069	2,306	2,419	3,462
1929	8,936	5,962	3,119	2,446	2,279	3,457
1930	8,863	6,408	3,547	2,176	2,225	4,756
1931	8,569	7,486	3,921	1,489	2,000	3,819
1932	7,339	7,410	3,741	1,263	1,320	3,350
1933	7,299	6,293	3,603	1,237	1,009	3,172
1934	7,528	5,480	3,505	1,191	908	3,397

The observation that the international trade in meat has declined leads at once to the inquiry whether the decrease of the imports into the importing countries has been compensated by an increase in home production or has brought about a restriction of consumption. It is to answer this question that a series of studies has been made of the production and consumption of meat in the principal importing countries. In the sections embodying the results of these studies the changes not only in the consumption of meat but in the relative proportion of home and foreign supplies are set out as fully as the available information allows this to be done.

The tables given in the Report to show the changes in the consumption of meat are drawn from a documentation prepared by the International Institute of Agriculture and presented to the Mixed Committee of the League of Nations on the Problem of Nutrition (2). We here reproduce one of these tables.

---

(1) The information in the Report is carried up to the end of 1935. More detailed, but not so recent, information may be found in earlier publications of the International Institute of Agriculture. See the volumes for 1932-33, 1933-34 and 1934-35 of "The Agricultural Situation," and the numbers for October and November 1935 of the *Monthly Bulletin of Agricultural Economics and Sociology*.

(2) League of Nations: The Problem of Nutrition. Vol. IV: Statistics of Production, Consumption and Prices. Geneva, 1936.

Consumption of Beef and Veal, Pigmeat and Mutton and Lamb
(in Kilogrammes per Head).

Country	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Belgium	38	38	38	38	38	40	42	40	41	41
Czechoslovakia	33	34	34	36	35	35	35	33	31	34
Denmark (1)	49	—	—	42	42	47	47	57	66	66
France	—	—	33	35	34	33	34	34	35	34
Germany	47	45	49	52	51	50	49	48	49	54
Italy	—	19	20	20	20	16	17	16	16	15
Netherlands	40	38	39	39	37	37	41	42	45	—
Norway	28	31	32	32	32	32	33	33	32	35
Poland	—	—	17	19	19	18	20	19	20	19
Switzerland (2)	46	44	—	44	44	44	47	48	48	50
United Kingdom	62	61	63	64	62	62	65	65	63	63
Canada	67	68	70	69	69	66	67	67	62	64
United States	62	61	63	63	62	60	61	62	64	63
Australia	111	105	112	111	97	91	85	86	98	97
New Zealand	113	117	105	105	106	96	127	105	98	111

(1) FABER's estimate 1922 (Journal of the Royal Statistical Society, January 1934), includes offal. — (2) 1921.

While the absolute figures are not strictly comparable, owing to differences in the methods of calculating or estimating the consumption, the table shows —and the fact is also shown by the separate tables for the consumption of beef and veal, of mutton and lamb, and of pigmeat—that the tightening of the measures of restriction has not led to a decline of consumption in all the countries. Thus in France, Belgium and Switzerland the consumption of meat has increased rather than diminished. On the other hand, in Australia and New Zealand, which are exporting countries, a considerable decrease in the consumption of meat may be observed, and in Canada, another exporting country, there has been a small decrease which, nevertheless, exceeded the decline in the consumption of the importing countries, Germany and Czechoslovakia. It is true, however, that Italy shows a particularly pronounced decline in the consumption of meat.

It would seem, from the figures, that the fall in consumption that has been observed in certain years in several countries that have imposed severe restrictions on imports has been a result of the general economic crisis and that, in consequence, after a certain economic revival noted in these last years it has again been replaced by an increase. Consequently the restrictive measures have only a secondary importance. It is precisely because the consumption has fallen in importing countries such as Germany and Czechoslovakia that imports have been more and more rejected. In these countries the restrictions on the import of meat only represented a link in the chain of agricultural protectionism as a whole, without which the consumption of food-stuffs would have probably fallen even more markedly since, had there been no restrictions on imports, the difficulties of agriculture would have been greater and the consumption capacity of other large sections of the population would have been even more severely depressed.

A much more important factor in the development of the international meat trade than the fall in consumption has been the increase of home production in the importing countries themselves. The case of the United Kingdom is of special interest. Taking all kinds of meat together the home supplies have increased since 1924 and in 1934 were 18.2 per cent. higher than in the earlier year. Total imports reached a maximum in 1931, but have since considerably declined; the decline affected imports from both British and foreign countries, but was much more marked in the case of foreign countries. Expressed as percentages of total supplies of meat, the home supplies rose from 41.42 per cent. in 1924 to 46.97 per cent. in 1934, and the supplies from British countries rose from 17.41 per cent. to 19.98 per cent., while the supplies from foreign countries fell from 41.17 per cent. to 33.05 per cent. In Germany the increase in home production and the decline in imports were much more marked than in the United Kingdom. The national production of all kinds of meat rose from 25,232,000 quintals in 1925 to 34,160,000 quintals in 1935, while in the same period the excess of imports fell from 2,795,000 quintals to 787,000 quintals. Thus the national production, expressed as a percentage of total consumption, rose from 90 per cent. in 1925 to 98 per cent in 1925. Home production in France varies considerably from year to year and, as a consequence, foreign trade fluctuates widely; the foreign supplies, expressed as a percentage of total consumption, were 10.8 per cent. in 1927, 1.8 per cent. in 1929, 17.4 per cent. in 1931 and 2.5 per cent. in 1935.

The study concludes with the following estimate of prospects in the international meat market: " The decline in the volume of international trade in live animals and meat has been, in part, the consequence of a restriction of consumption due to the crisis, and where the crisis has not reduced the consumption it has certainly, in many cases, prevented an increase in consumption. The good harvests of forage crops from 1929 to 1933, combined with the low prices of fodder had, moreover, accelerated the increase of production in various countries, and this also reduced the import requirements. But in the countries in question, the bad harvests of forage crops in 1934 and 1935 and a simultaneous economic revival in 1935 had the effect of bringing about a renewed increase of imports. If unemployment continued to decrease and the purchasing power of large masses of the population increased, the import requirements of several countries might grow still further. For, according to all the studies relating to the question, the meat consumption of large sections of the population of the meat-importing countries still remains well below the quantity that would be desirable from the physiological point of view. Even a small increase of the average consumption per head of the population would render it necessary that large supplies should become available.

" However, in view of the present difficulties of international trade and of payments, it would be possible only to a certain extent to bring about a revival of the international meat market by an increase in consumption. It is precisely on account of these last difficulties that, in spite of an increase in requirements that has already taken place and has even given rise to more or less appreciable tension in the meat supply, several countries (Germany, Italy, Greece) have during recent years, only allowed their imports to increase within certain limits, and have endeavoured by various means to adapt the consumption to the available supplies. The longer the present difficulties in connection with international exchanges and the measures of restriction continue, the smaller the chances of a marked revival in international trade in meat become. Even now it is difficult to believe that the policy of agricultural production, clearly defined and energetically pursued that is found without exception in all the principal importing countries can be fundamentally changed. The aspiration to greater independence in the meat supply, an aspiration occasioned by a great variety of motives (safeguarding the profitableness of agriculture, maintaining the purchasing power of large sections of the population, exchange difficulties, creation of possibilities of employment) has, in any case, given birth to great capacities for production, which now could hardly be destroyed, but will probably be developed more and more. But the intensity of this aspiration and the degree to which it will be felt depend, eventually, on the form which international economic relations will take more than on the technical possibilities of production and considerations of profitableness. "

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

WORKERS' NUTRITION AND SOCIAL POLICY. International Labour Office, Geneva 1936.

The Report on " Workers' Nutrition and Social Policy " published by the International Labour Office contains the results of an extensive investigation of the problem in compliance with a resolution submitted to and approved by the International Labour Conference of 1935 The investigation was carried on in collaboration with the Health and Economic Sections of the League of Nations and with the International Institute of Agriculture The report is contained in eight chapters and its contents are further illustrated in six appendices dealing with some particular aspects of the general problem of nutrition. Chapter I, " Nature and Scope of the Report, " deals with the broad questions of malnutrition, malnourishment and under-nourishment, each of which classifications is clearly defined and examined in its relations to generally accepted nutrition standards (the London Standards), to what workers actually eat, to economic and social problems and to the means of improving the methods of nutrition at large and among the workers in particular. Chapter II, under the headings (*a*) The Problem of Food Rations, and (*b*) Energy Requirements of the Worker, contains a careful study of the relations between nutrition and occupation, while Chapter III deals with facts on workers' diets, such as national differences in food consumption, variations in food consumption according to family incomes, the question of malnutrition as a consequence of imperfect knowledge of the proper food requirements of man according to well established nutrition values, etc. In the words of the report itself, from the discussion of the nutrition problem in Chapters II and III, there emerges the fact of a wide discrepancy between scientifically established optimum standards of nutrition and the actual food consumption of large sections of the working population. At this point the question arises: is agriculture capable of meeting the increasing demand for the necessary foodstuffs? This question is fully answered in the affirmative by the section of the Report (Chapter IV) prepared by the International Institute of Agriculture, which contains the following concluding remarks: " In theory agriculture is certainly able to respond to the increased demand for a real improvement in nutrition standards. Such an improvement would no doubt tend to diminish if not eliminate the present problem of surpluses and over-production and a considerable increase in production might even become necessary. " Obviously a re-adjustment of agricultural production to meet an increasing demand raises other problems which for their proper solution require the collaboration of the agricultural producers and all other parties concerned in the main problem of raising the nutrition standards of the populations and providing the means thereto. Social-economic aspects of the problem of nutrition present themselves and are dealt with in Chapters V and VI of the Report. Prices of foodstuffs, production costs, market organisation and distribution costs, commercial and fiscal policies, nutrition standards and consumption habits, wages, social insurance and assistance, working conditions of the labourers are subject to the inquiry and discussion of the experts who prepared the material embodied in the report which, in the concluding paragraph of Chapter VI contains the statement that "in view of the general and widespread attention now being focused on workers' nutrition, it may be reasonably expected that social and labour legislation will deal in the future with the question at issue more directly, in greater detail and in a more scientific way than hitherto. " Meanwhile the report shows that agencies and methods to improve nutrition are already at work (Chapter VII). That such improvement is necessary and urgent is evidenced by the findings of the report as summarised in Chapter VIII: " Large numbers of the working population not only in impoverished or depressed areas but even in the most advanced industrial countries are inadequately nourished. Such malnourishment and under-nourishment are not the result merely of temporary dislocations due to an industrial depression, though a depression usually has an aggravating influence. It is a condition found among many employed workers in times of normal business activity. " The remedy to this distressing situation is clearly indicated. It is for the proper agencies to act in accordance with the suggestions implied in the findings of the report if the causes of unwarrented and avoidable misery are to be eliminated.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Economics.

GRANDEL, A. Le développement économique de l'Indochine française. [Saïgon, Impr. C. Ardin, 1936]. 238 p.

HARMSEN, H. und F. LOHSE. Bevölkerungsfragen. Bericht des Internationalen Kongresses für Bevölkerungswissenschaft, Berlin, 26. August - 1. September 1935. München, J. F. Lehmann, 1936. XXVI, 972 p.

PRIVREDNA ORGANIZACIJA NEMAČKE. Beograd, Narodno blagostanje, [193-]. 179 p., (Planskoprivredna proučavanja, urednik Velimir Bajkić, v. 1). [Economic organisation in Germany].

[UNITED STATES]. National resources committee. Regional factors in national planning and development. December 1935. Washington, Govt. printing office, 1935. XVIII, 223 p.

Legislation.

PALAJA, G. I consorzi nel nuovo testo unico della legge comunale e provinciale. Como, Tip. ed. C. Nani, 1935, 226 p.

Statistics.

HOTVÁTH, Pavel. Priručka hospodárskej štatistiky slovneska. Bratislava, 1935. [XIX], 207 p. (Ustredné sdruženie slovenského priemyslu, Bratislava. Knižnica časopisu « Hospodárstvo a právo », Cis. 3).
[Handbook of Economic Statistics of Czechoslovakia].

Rural Economics.

Mollov, Ian S, i G D Kalaptchiev. Икономическа преценка на нѣкои сѣитбообращения въ Софийско. София, П-ца на Армейския военно-издателски фондъ, [1935] [87] p (Трудове на Института по земедѣлска икономия при Агрономо-лесовъдския факултеть на Университета, 17)
[Second title in English Economic evaluation of some farm crop rotations in the County of Sofia]

Mollov, Ian S i A Iv Totev Цени на земедѣлскитѣ продукти у насъ презъ последнитѣ години 1881-1934 год. София, П-ца на Армейския военно-издателски фондъ, [1935] [141] p, (Трудове на Института по земедѣлска икономия при Агрономо-лесовъдския факултетъ на Университета, 19)
[Second title in English Prices of the agricultural products in Bulgaria during the last 54 years, 1881-1934 years]

Mollov, Ian S, i Kleiton E Outpal [Clayton E. Whipple] Земедѣлскостопански райони въ Ловчанска околия. София, П-ца Н Л. Овчаровъ, 1935 55 p (Трудове на Института по земедѣлска икономия при Агрономо-лесовъдския факултеть на Университета, 18)
[Second title in English Types of farming in Lovetch County]

Touzet, M Le problème du blé en France et sa solution législative actuelle, avec le commentaire des décrets-lois du 30 octobre 1935 Bordeaux, Impr R Samie, 1936 217 p

Co-operation

Jahn, G Das deutsche Genossenschaftswesen der Gegenwart Leipzig, H Buske, 1936 169 p (Beitrage zur Genossenschaftskunde hrsg von Georg Jahn, Hft 3)

Credit

Komadinitch, M J Проблем сељачких дугова. Београд, "Штампарија" Привредни преглед, 1934 [95] p
[The problem of agrarian indebtedness]

Commerce

Braun, H Das Baumwolltermingeschaft Eine Untersuchung der Risikoausschaltung durch Termingeschafte im Handel mit nordamerikanischer Baumwolle unter besonderer Berucksichtigung der deutschen baumwollverarbeitenden Industrie und des Fertigwarenhandels Stuttgart, C E Poeschel, 1936 XI, 224, p

Various

Ahrens, R Deutsches Bauerntum in deutscher Dichtung Bielefeld und Leipzig, Velhagen und Klasing, 1936 64 p (Velhagen und Klasings deutsche Lesebogen, no 218)

Balabanov, N T Чехословашко София, Издава Славянското дружество въ България, 1934 VI, 90 p. (Славянска библиотека Д-ръ Стефанъ Сарафовъ, Год. I (X), 1933 г)
[The Czechoslovakia]

Botarelli, A Le Colonie d'Italia (1861-1935) Lanciano, G Carabba, [1936] 263 p

Corsi, E La Bulgaria Popolazione, agricoltura, altre minori attività. Sofia, [s n e], 1935 XI, 149 p

Directory of agricultural and home economics leaders 18th Edition Cambridge, Mass, W G Wilson, 1936. 844 p

---

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

INTERNATIONAL ORGANISATION OF THE RUBBER MARKET (1)

SUMMARY. — Position of the market up to 1921. First attempts at international regulation. — Stevenson Committee of Enquiry. — The Duncan Plan and the Stevenson Plan. — The second Stevenson Plan — Difficulties experienced in and effects of the application of the Stevenson Plan. — Further endeavours at regulation of the market. — International agreement of 1934.

POSITION OF THE MARKET UP TO 1921.
FIRST ATTEMPTS AT INTERNATIONAL REGULATION.

The first attempts at international regulation of the rubber market date from the middle of the year 1921, following on the serious crisis affecting the trade in rubber.

Rubber consumption was greatly stimulated by the development of the motor car industry and by the constantly increasing requirements of the European and American industry, and during the prewar years consumption tended to outstrip production, prices reaching their maximum in 1910 at 12*s.* 9*d.* per lb. From 1914 onwards, however, a very rapid increase took place in the production of rubber mainly as a consequence of the extensive hevea planting carried out during the preceding period, on which tapping was beginning.

Up to 1905 the only source of rubber was the forest gathering of the fresh rubber, a large proportion coming from Brazil and the remainder from Equatorial Africa. In consequence of the greatly extended demand for the commodity, there was a search for new working methods likely to be adequate to the progressive character of the demand, and the solution was found in the rubber plantation. Rubber planting began on a small scale and then rapidly extended in Malaya and in South Eastern Asia, very soon outstripping the production of forest rubber and later the requirements even of consumption.

The disproportion set up between production and consumption is however to be attributed not merely to the rapid increase of the production of plantation rubber, but also to the decline in consumption, consequent on the war. On a certain proportion of the European market, purchasing and consumption capacity had become reduced. On the other hand, the considerable increase in consumption in America was not enough to absorb the surplus production. Stocks had begun to accumulate and the prices of raw rubber fell steadily, while the cost of production perceptibly increased: in 1920 costs amounted to 9*d*. the lb., while the selling price did not exceed 7*d*. the lb.

---

(1) The material for this article has been largely taken from the important publications on the subject by **TARD**, Economie et Politique du Caoutchouc, Paris, Imprimerie, Les Presses Modernes 1928, and **HÜBNER**, Kautschuk, Chemisch-technischer Verlag, Dr. Bodernbender.

The Rubber Growers' Association, founded in 1907 in London and grouping a large proportion of the British planters and rubber planting companies, in 1918 had requested its members to limit their production by 20 per cent. and not to exceed a yield of 215 kgs. per hectare (192 lb. per acre). Three fourths of the members accepted the proposed limitation and actually the production of 1918 fell as compared with that of 1917 by 35,000 metric tons: some part of the stocks at Singapore or at Penang could thus be exported. These results were however only temporary, as the efforts were counteracted by the action of producers not bound by the engagement. At the same time consumption fell still further.

In 1919 the Association had taken a further step by inviting its members to reduce production by 25 per cent. which 95 per cent. of them undertook to do. But the consequent diminution of production was not enough to counterbalance the decline in consumption. The market was loaded with enormous stocks and a further collapse of prices took place in 1921; raw rubber was quoted at 10*d*. and lower per lb. This price no longer covered the planters' costs of production, the growers' situation became serious and a proportion of the plantations were abandoned or burnt.

It was in consequence of this situation that towards the middle of 1921 the Association proposed to form a syndicate of growers to fix the price of rubber, regularise the plantation of new areas and effect all purchasing and all advances on the crops of members of the syndicates. This proposal however did not meet with success. While many British and Dutch planters were opposed to all forms of control, others would have accepted it, provided that such a measure became generally imposed by law. Other producers required as a *sine qua non* condition the financial assistance of the association. On the other hand, it was not possible to contemplate bringing into the association the small native planters numbering some tens of thousands holding about 500,000 acres of plantation out of the 3,000,000 acres representing the total area planted.

In spite of the negative result of this attempt, the Rubber Growers' Association addressed a fresh appeal to growers, inviting them to restrict their production in the course of 1922. It was however impracticable to arrive at an agreement owing to the diverse conditions of cultivation in Malaya, in Ceylon and in Java in accordance with the nature of the soil, the climate and labour conditions. Dutch growers could produce on their plantations rubber at the price of 5*d*. the lb. which allowed them to make a profit even on sales at the lowest price of 7 ¼*d*., while the British planters could not produce at less than 9*d*., except in Ceylon, where the conditions of production were more favourable than in Malaya.

At the same time the Association had renewed its efforts to obtain the support of its members for the continuance of voluntary restriction by means of their engagement not to produce during the first six months of 1922 a quantity of rubber in excess of that produced by themselves during the first six months of 1921, or, if preferred, not more than 75 per cent. of the rubber produced during the same period in 1920. It was successful only in obtaining the adhesion of 55 per cent. of its members, while a minimum of 70 per cent. of the membership seemed essential if the plan was to have the results desired.

In 1922 another system had been devised by M. Burger, the proposal was to establish a bureau for collective selling and to constitute a joint reserve of 100,000 metric tons of rubber. (This figure was fixed on the basis of the surplus stocks at the end of 1921). This reserve was to be built up by means of a levy of 25 per cent. on the stocks of British and American dealers and the remainder by the growers. It would in fact have had to be constituted by the growers alone if the dealers had refused to give their support to the scheme. The control of this so-called Iron Stock was vested in a management council which it was expected would have held it off the market for a period of three years. Under this scheme no restriction of output was contemplated.

STEVENSON COMMITTEE OF ENQUIRY.

In the meantime the situation became even more serious. During 1921 the pressure exerted by the Rubber Association to obtain legislative action in restriction of output had met with no support from the Colonial Office. In view however of the consequences already accruing from the state of affairs and of the more serious results that might be anticipated, the Secretary of State for the Colonies, Mr. Churchill, appointed in October 1921 a committee which was to institute an enquiry and to make a report on the existing situation in regard to rubber in the British Colonies and Protectorates, for the information of the Secretary of State for the Colonies, and to indicate the measures to be taken for the improvement of this situation.

This Committee, consisting of nine members with Sir James Stevenson as chairman, presented on 19 May a report to Parliament on the existing situation in regard to rubber, indicating the measures to be taken for the strengthening of the market of this product. The actual production of raw rubber in 1920 had been 370,000 tons including 335,000 of plantation rubber and 35,000 of new rubber, in 1921 the total production had been 282,000 tons, viz., 260,000 tons of plantation rubber and 22,000 of wild rubber. On the other hand the consumption had amounted to 310,000 tons in 1920 and to 265,000 tons in 1921. The world stocks of raw rubber on 31 January 1922 had been estimated at 210,000 tons for the consuming countries, 60,000 tons for the producing countries and 40,000 tons afloat.

In the absence of complete official statistics these figures represent an approximation based on careful study of official and private returns and are evidence of the gravity of the situation.

The Committee considered from four points of view the means which might be adopted for reducing the existing surplus stocks and for regulating output so as to secure equilibrium between supply and demand and to place the rubber industry on solid bases: (*a*) a campaign in favour of new and wider uses of rubber; (*b*) voluntary restriction; (*c*) the *laisser faire* method; (*d*) government action.

As regards the first of these, it was recognised that much could be done in this direction, but that it should be realised that this method could not yield an immediate solution of the problem, as it would necessarily be some time before these new and wider applications of the commodity could result in any perceptible increase of consumption.

In regard to voluntary restriction, the Committee noted that all the efforts in this direction made by the Rubber Growers' Association had given inadequate results.

With respect to the adoption of *laisser faire*, the Committee could not recommend leaving matters in their present state till all efforts had been made to reach a positive solution of the problem.

There remained the last method, the adoption of which was recommended by the Committee, although accepting with reluctance any State intervention in the economic field, especially when this intervention was to take the form of restriction of output of an important raw material. Taking into account however the disastrous consequences which threatened alike the industry and the countries where it is practised on a large scale, the Committee resolved to recommend a measure of compulsory restriction as the sole alternative to the apparent further accentuation of the danger. At the same time however the Committee wished it to be understood that from the beginning of the enquiry it had been recognised that a restriction scheme, whether voluntary or compulsory, could not be imposed in Malaya if it were not also applied in the other countries in which rubber is produced on a large scale. The Committee added that it was not prepared to recommend a restriction scheme without such scheme being accepted also by the authorities of the Netherlands East Indies controlling the single important source of plantation rubber outside the British Colonies and Dependencies.

The following are some approximate percentage figures of the total rubber production at this date, showing the relative importance of the different centres of plantation rubber production:—

Malaya	57.5	per cent.
Ceylon	12.5	» »
Southern India and Burma	2.0	» »
Netherlands Indies	25.5	» »
Other countries	2.5	» »
	100.0	per cent.

THE DUNCAN PLAN AND THE STEVENSON PLAN.

Among the numerous restriction schemes, two systems seemed to the Committee to offer a practical solution of the problem: the plan proposed in 1921 by the Duncan Committee and the new scheme proposed by the Chairman of the Committee, Sir James Stevenson.

By the former plan legislative measures were to be put into force prohibiting simultaneously the production and the export of any quantity of rubber exceeding a percentage to be strictly fixed of the quantity produced and exported during a previous specified period.

By the Stevenson plan a graduated scale of duties on export was contemplated varying with the percentage of a standard production (Standard production = the normal output of a previous period precisely determined). Low rates were to be imposed on the quantity exported within the limits of the authorised percentage, while very high duties were to be placed on the commodity when the quantity exceeded the percentage authorised for export.

The essential difference between the two plans lies in the fact that the first prohibited the output above a fixed percentage without insuring thereby any revenue to the State, while the object of the second was to restrict export above a fixed percentage without directly restricting production: by the second scheme in addition the State was to secure revenue from the duties collected.

The following are the main lines of the first plan: (*a*) adoption as standard production the actual production of each grower during the 12 months from 1 November 1919 to 31 October 1920 (the aggregate estimated quantity for all the producing countries is 330,000 tons of plantation rubber), (*b*) restriction of the output to a percentage of the standard leaving a margin of production allowing for the execution of contracts in course or for special difficulties. Such percentage would be fixed from time to time by notification in the Government Gazette.

The main lines of the second plan are as follows (*a*) the standard production was determined as in the first plan, (*b*) the scale of duties on exportation started from a minimum of 1*d*. and gradually increased up to 1s. 2*d*.

Percentage of the standard production exported	Duties payable per lb
over 100 per cent.	1s 2*d*.
from 91 to 100 per cent.	1s. 0*d*.
» 81 » 90 » »	10*d*.
» 76 » 80 » »	8*d*.
» 71 » 75 » »	6*d*.
» 66 » 70 » »	4*d*.
» 61 » 65 » »	2*d*
» 60 per cent. and under	1*d*.

According to this scale a duty of 1*d*. per lb., without taking account of the price of the rubber and of the quantity exported, was to be paid in permanence in place of the existing *ad valorem* duty. The rates higher than 1*d*. would however be imposed temporarily, for example for three years. When the rubber market situation had improved to the point of justifying an increase in the exportable percentage of the standard production, the elasticity essential to the working of the plan would be obtained by the fixing of the minimum duty of 1*d*. immediately below the percentage thus raised: for example, if the export of 70 per cent. instead of 60 per cent. of the standard production could be absorbed, the duty on the export of 70 per cent. and under would be fixed at 1*d*., the duties on 71 per cent. and over would be the same as on the scale indicated.

The second plan was considered by the Committee to be preferable to the first, and easy of application.

The question of restriction by legislation was brought forward in the course of a conference which was held in 1922 under the auspices of the International Association of Rubber Planters. At this conference, attended by representatives of British, French, Dutch, Belgian and American planters, a resolution was passed by a majority of 383 votes asking for the support of the Netherlands Government to the Stevenson plan. The British voted in favour of the restriction and of the Netherlands adhesion, the Dutch against the motion in the proportion of 1 to 2, the Americans as especially the representatives of the rubber industry against the motion in the proportion of 1 to 2. The Netherlands Government did not hesitate to declare itself against the scheme, as not desiring for the time being to introduce any legislative measure for the purpose of restricting the production of rubber in the Netherlands possessions.

These results seemed destined to wreck the Stevenson plan for which the adhesion of the Netherlands was a *sine qua non* condition.

The views of the Stevenson Committee were however influenced by the increasing gravity of the situation, together with certain new facts and several important considerations. Among these was in the first place the excessive increase in the output of rubber due to the failure of the attempt made by the growers to render voluntary restriction effective, with the consequent continued decline in rubber prices. A second consideration pointed to the adoption of restrictive measures without taking account of the attitude of the Netherlands Government, and this was the unanimous demand for such measures by the leading rubber companies, both in London and in Malaya. The deciding factor, however, in the Committee's change of attitude was the discovery resulting from enquiries made that there were possibilities of securing, on the important British plantations situated in the other producing countries, a voluntary restriction corresponding to that which might be resolved on for the territories forming part of the British Empire. The Rubber Growers' Association had obtained the promise of a co-operation to this effect in the majority of its plantations and the Committee were of opinion that a similar co-operation would make possible in the British territories a proportional reduction essential to a readjustment of supply to demand.

THE SECOND STEVENSON PLAN.

On 2 October 1922 the Stevenson Committee presented a new report modifying its original point of view and abandoning the previous question of Netherlands support. At the same time it recommended the bringing into force of the new plan of State intervention in Ceylon, the Malay States and the Straits Settlements.

In the May report the Committee had fixed the percentage of the standard production, exportable at the minimum duty, at a rate (60 per cent.); according to the new plan the authorised percentage exportable at the minimum duty was to vary according to the fluctuations in the prices of raw rubber. So that the application of the system might have the desired result, the Committee had taken steps to meet the case in which the percentage of the standard production for which the minimum export duty had been authorised should prove to be too high for reasons not foreseen at the time of the introduction of the plan. Accordingly, for the case in which in the second three months of the application of the plan or in any other three-monthly period the price of rubber had not attained at least a certain fixed average, the Committee recommended the reduction by 5 per cent. of the quantum of the standard production exportable at the minimum duty, and if this reduction was not enough to re-establish the average price in the following three months, a further reduction of 5 per cent. was to be made at the end of three months and so on by five per cent. reduction at the end of each three months until the average price had been obtained.

The new plan fixed, for each grower who desired to export, a quantity larger than that allocated to him at the minimum rate, the minimum export duty rates being for twelve months on the following scale:

Percentage of the production standard exported	Duty charged per lb on total export
not exceeding 65 per cent.	4*d*.
over 65 » » not exceeding 70 » »	5*d*.
over 70 » » not exceeding 75 » »	6*d*.
over 75 » » not exceeding 80 » »	7*d*.
over 80 » » not exceeding 85 » »	8*d*
over 85 » » not exceeding 90 » »	9*d*
over 90 » » not exceeding 95 » »	10*d*.
over 95 » not exceeding 100 » »	11*d*.
over 100 » »	12*d*.

As for the first Stevenson Plan, when the rubber situation should be improved, enough to allow of increasing the quantity of standard production exportable at the minimum duty rate, the minimum duty was to be substituted in its appropriate place on the scale.

Provision was also made by the Stevenson Plan for the establishment in London of an advisory council with the function of co-ordinating the application of the plan in the countries adhering to it. The Committee suggested that this council should be composed of official and non-official members, and should undertake to give its views to the Secretary of State for the Colonies on all questions relating to the application of the plan and to advise on the alterations in the minimum duty entailed by the application of the plan.

The Committee further recommended the Governments concerned to set up local committees for the purpose of deciding on the special cases which might arise from the local application of the Stevenson Plan.

Rules to be followed by the local committees in the application of the plan were also suggested. It is of interest to note the main principles laid down by the Committee in regard to the application to each grower of the quota allocated of standard production.

According to the Stevenson Plan the standard production of an estate was to be taken to mean the quantity of dry rubber produced by that estate during the period between 1 November 1919 and 31 October 1920. If an owner was unable to declare the quantity of rubber produced on his plantation during the period stated, it fell to the Committee to fix the total of what it considered to be the standard production of the plantation. The quantity thus fixed was not, however, to exceed the quantity obtained by multiplying the number of acres planted in rubber by the figure of the table established by the plan and indicating the production by acre according to the age of the trees, beginning from five years. If an owner showed that a proportion of his estate was planted in trees not yet tapped before 1 November 1920, his standard production would be recognised as his production from 1 November 1919 to 31 October 1920 with the addition of quantities calculated according to the scale indicated above. If an owner proved to the satisfaction of the Committee that the production of his estate during the period indicated was lower than the normal production owing to shortage of labour or unexpected illness among labourers, or owing to diseases on the plantations since restored to a normal state, or because the trees were resting or for any other cause which might reasonably be adduced, it was possible to grant him in addition to his production during the period indicated above an increment left to the discretion of the Committee, but in no case such that the total of the production of this plantation exceeded the quantity obtained by multiplying the number of acres planted in rubber by the figures of the table mentioned above.

No alteration could be made in the standard production certificates for one year from date of origin; but at the expiration of each year any owner might request the revision of the quantity assigned to his plantation on proving that since the issue of certificates new plantation areas had reached the age of five years and had entered on the period of tapping. In this case the Committee might increase the quantities assigned according to fixed rules.

Rules were in addition established for the case in which an owner had been able to prove that he had normally concluded a contract involving the delivery of a quantity of rubber in excess of the total of the normal standard which had been assigned to him referred to the quantum of restriction at the time being.

Apart from this, provision was made for the case in which the owners might adduce good reasons why the Committee should assign them as standard production a quantity other than their actual production.

The above plan, as indicated in its essential lines, was to come into force on 1 November 1922 for Malaya and for Ceylon. The other British rubber producing colonies for the most part adhered voluntarily to the plan as well as the majority of the British planters who had estates in the Netherlands colonies, in accordance with the undertaking given. Subsequently several small changes were introduced into the plan, which left the general structure unaltered but modified the rates adopted alike for exportation and for the production standard.

DIFFICULTIES EXPERIENCED IN AND EFFECTS OF THE APPLICATION OF THE STEVENSON PLAN.

Although the Stevenson Plan had laid down very precise rules for the fixing of the production standard, some serious difficulties appeared as soon as the plan was put into application. It was declared to be very difficult to determine precisely the standard production of each plantation.

Differences occur in the production conditions not only in the different countries (which is taken into account in the calculation) but also within each country according to the greater or less altitude of the plantations, the climate, the soil structure, labour conditions, etc. It was stated in consequence that for certain growers the standard production was fixed at a level which greatly exceeded the export percentage so that planters were able to accumulate unused export certificates and later on to export excessive quantities.

In addition the local committees encountered difficulties raised by growers and dealers in rubber in regard to pre-existing contracts for supply of rubber. It became necessary also to take severe measures against the disturbances caused by the coolies who had been discharged from a number of large estates on account of restrictions under the plan, as also against contraband practices, these latter being greatly facilitated by the vast extent of the coasts on which the plantations were situated and by the waterways (1)

In spite of these difficulties the plan was applied and it must be recognised that it resulted in 1923 and 1924 in a slight improvement in rubber prices, the advance becoming more marked towards the end of 1924, when the market definitely took a turn in the direction of higher prices.

In March 1925 the price of raw rubber rose from 1s *3d.* to 2*s.* per lb., while the average price in the course of 1922 had been 9 ½*d.*, in 1923 1*s.* 3*d.*, in 1924 1*s.* 2*d.*, attaining 2*s.* 11 ¼*d.* in 1925. The London stocks which had been 70,000 tons in 1923, fell to 5,000 tons in 1925. The American stocks were reduced to almost nil.

A veritable boom followed. There was an extraordinary rise in prices which became almost prohibitive in the case of certain types of manufacture and caused heavy increases in the production costs of the American industry. This latter in consequence made representations to the United States Government which in its turn appealed to the British Government. As no alteration was made in the Stevenson Plan, an organised resistance was set up in America with the support in particular of Senator Hoover.

Efforts were mainly directed to limiting the consumption of rubber; damaged or worn out tyres were repaired more frequently again. Purchase of new tyres was postponed by the utilisation of those held in reserve, the condition of the roads was improved thus lengthening the life of the tyres. In addition the motor car factories refused to make contracts involving future deliveries, although previously such contracts had frequently been made involving delivery at six months or even a year.

As a consequence of these measures a decrease in consumption was noticeable in the United States, amounting in 1925-26 to 17 per cent. for tyres and to 23 per cent. for air chambers, and this although during this period the number of motor cars increased by some two millions.

With a view to exercising a wider influence on the market, the large consumers in 1926 decided to form purchasing pools, and also established in New York a new Rubber Exchange constituted by the tyre manufacturers, the importers of raw rubber and the principal agents, the object being to counteract the influence of the London market and to resist speculation and price raising.

---

(1) De Macedo Soarez. Rubber. An Economic and Statistical Study. London 1930, p 46.

Many of the measures applied in the United States for the reduction of consumption and the regulation of the market are, in view of the progressive increase in the number of motor cars, to be regarded as purely temporary. It was by measures of another kind that endeavours were made to diminish permanently the influence of the British market, while production was at the same time largely passing into American hands.

Companies of American manufacturers bought plantations and lands on which to plant rubber in South Eastern Asia and especially in Sumatra. At the beginning of 1928 an area of 200,000 acres had become the property of Americans in the Netherlands possessions.

It became the policy of the United States to establish plantations on American territory or in other countries, and technical commissions were set up at the public cost to study the possibility of growing rubber in different countries, which was actually effected in California, in the Philippines, in the West Indies, Brazil, Central America, Mexico and Liberia.

Other countries followed this example. The French plantations of rubber in Indo-China were extended; 5,000 acres were planted in 1920 in the Belgian Congo. In Sumatra, Malaya and Borneo Japanese purchases were made in 1925 of lands capable of yielding 8,000 tons (per annum) of the product. The Italian manufacturers, Pirelli, in 1927 purchased in Malaya and in Ceylon 9,500 acres, some part of which was already planted in rubber.

A more important aspect of these efforts to diminish the dependence of the industry on the British rubber market was the increasing utilisation of reclaimed rubber, or the reworking of old rubber material, either by itself or in combination with new rubber, for the manufacture of air chambers, pneumatic and solid tyres. The consumption of reclaimed rubber increased from 79,000 long tons in 1924, to 137,000 in 1925 and in 1928 reached 203,000 long tons, or nearly one third of the annual production of fresh rubber.

Other countries as well as the United States made increasing use of reclaimed rubber. On an approximate calculation 50,000 tons of reclaimed rubber was manufactured in Europe in the course of 1937.

The working of the Stevenson Plan was also hampered by the increased production in countries not bound by the plan, and by native production.

The former represents a natural development which requires no explanation. In the Netherlands Indies production has increased in the following proportion: in 1922 out of the total output of plantation rubber the Stevenson Committee calculated that of the Netherland Indies at 26 per cent., while the production on the territories belonging to the British Empire was represented by 72 per cent. In 1928 (the last year of restriction under the Stevenson Plan) the production in the Netherlands Indies rose to 37 per cent. while that in the British territories declined to 58 per cent. Moreover countries which prior to the coming into force of the Stevenson Plan had quite a small production, in the course of the years of restriction considerably increased the areas planted in rubber.

Consumption of Reclaimed Rubber in Long Tons and in Percentage of Fresh Rubber in the United States during the period 1917-1931.

Year	Consumption		Percentage of reclaimed rubber
	Fresh rubber	Reclaimed rubber	
	long tons	long tons	°
1917	157,371	89,168	57
1919	202,303	73,535	36
1920	196,270	75,297	38
1921	169,308	41,351	24
1922	283,271	54,458	19
1923	319,700	75,200	24
1924	336,600	78,500	23
1925	387,629	137,000	35
1926	366,000	164,500	45
1927	375,000	189,000	50
1928	440.000	203,000	46
1929	470 000	224,000	48
1930	371,000	157,000	42
1931	349,000	127,000	36

(1) HUBNER, *op. cit.*, p. 937.

The following is a table indicating the percentage of the distribution of plantation rubber production in 1928:

Malaya	44	per cent.
Ceylon	9	» »
Southern India and Burma	2.5	» »
British Borneo	2.7	» »
Netherlands Indies	37.4	» »
Indo-China	2.7	» »
Siam	0.8	» »
Other countries	0.8	» »
	100.00	

As regards the other factor which affected the rubber market adversely to the working of the Stevenson Plan, the following observations may be made. The production of rubber in South Eastern Asia comes from two sources: the former is that constituted by the large estates controlled directly or at least financially by Europeans, Americans or by Japanese or Chinese usually forming plantation companies; the other source is that of the rubber garden native holdings found especially in the Netherlands Indies and in Malaya. This type of production, from its special structure, constitutes a serious obstacle to any regulation of production. These holdings require very small capital and taxes and other charges are usually very low. Native plantations are superior to the large plantations in their capacity for adaptation to circumstances. When production is unremunerative owing to a serious fall in prices, it is easy for the natives to suspend production just as it is easy for them to begin it again. As the capital required for this type of holding is limited the interest charges are very low and there are none of the administrative expenses incidental to large plantations.

It is difficult to say how far these two factors prejudicial to the working of the Stevenson Plan actually brought about the progressive price decline which on the London market in 1926 resulted in an average price over the year of 1*s.* 11 3/4 *d.* and in 1927 in an average price of 1*s.* 6 ½ *d.*, falling in 1928 to 10 ½*d.* On 4 April 1928 the British Prime Minister gave notice of the complete abolition of the restriction scheme to take effect from 1 November 1928, making the following declaration " The Government has received the report of the Committee of Civil Research on the question of rubber restriction, and it has decided that all restriction on the export of rubber from British Malaya and Ceylon will be removed on 1 November 1928, the existing scheme being continued unaltered in the meantime " (1).

After the abolition of the Stevenson Plan the total production of rubber rose from 662,220 tons in 1928 to 862,180 in 1929, to fall again in 1930 to 818,776, in 1931 to 804,152 and in 1932 to 707,346 tons.

The consumption of raw rubber which in 1928 had been 677,000 long tons, rose in 1929 to 805,000 long tons, falling again in 1930 to 695,000 long tons, in 1931 to 676,000 long tons, and rising again in 1932 to 706,000 long tons.

Prices have continued to fall from an average of 10 1/4 *d.* in 1928 and of 10 ½*d.* in 1929, they dropped to 5 1/8 *d.* in 1930, to 3 9/16 *d.* in 1901 and to 2 7/8 *d.* in 1932.

FURTHER ENDEAVOURS AT REGULATION OF THE MARKET.

The following is some account of the efforts made since 1928 by the countries concerned to arrive at an international agreement relating to the market of this important commodity.

In 1928 the Dutch planters met at the Hague and there proposed to constitute with the co-operation of British planters a joint sales office (2).

This scheme however had no outcome. From 1930 onwards several other plans of action were considered in various international meetings and conferences: restrictions, private or State imposed, policy as to exports (imposition of quotas in accordance with a scale), as to production, application to natives of restriction or alternatively suppression of their plantations with compensation, destruction of a proportion of the crop by flooding. Among the schemes contemplated there mention should be made of the Verubo scheme, that of the Association of rubber growers for regulation of production. Provision was made by this scheme for a 50 per cent. reduction of exports by means of a system of licenses, using as a basis the maximum of the last ten years and taking into account the production forecasts for the areas already planted. This was to be a five-year plan, in the course of which the percentage of original reductions would be modified by an international commission. The plan in question prescribed a regulation of export while the limit of production would be fixed by the Government concerned.

---

(1) DE MACEDO SOAREZ, *op. cit.*, p. 57

(2) HOUILLER L'organisation internationale de l'agriculture Paris, 1935, p. 231

TABLE I. — *World Production of Rubber from 1822 to 1932* (1)

(in long tons).

Year	Wild rubber		Plantation rubber	World production	Percentage of plantation rubber
	Brazilian varieties	Other varieties (2)			
1822	31	—	—	31	—
1830	156	—	—	156	—
1840	388	—	—	388	
1850	1,467	—	—	1,467	—
1860	2,673	(3) ca 2,000	—	ca 4,673	—
1870	6,591	(3) ca 2,500	—	ca 9 091	—
1880	8,679	(3) ca 5,500	—	ca 14,179	—
1890	16,200	12,677	—	28,867	—
1892	18,450	11,620	—	30,070	—
1895	20,700	13,577	—	34,277	—
1897	22,650	17,240	—	39,890	—
1898	21,900	23,359	—	45,259	—
1899	25 100	24,686	4	49,790	—
1900	26 750	27,136	4	53,890	—
1901	30 300	24,545	5	54,850	—
1902	28,700	23,632	8	52,340	—
1903	31,100	24 829	21	55,950	0 0
1904	30,000	32,077	43	62,120	0 1
1905	35,000	27,000	145	62,145	0 2
1906	36,000	29 700	510	66 210	0 8
1907	38,000	30,000	1,000	69 000	1 4
1908	39,000	24,600	1,800	65,400	2 8
1909	42,000	24,000	3,600	69 600	5 2
1910	40 800	21,500	8 200	70,500	11 6
1911	37,730	23,000	14 419	75,149	19 2
1912	42,410	28,000	28,518	98 928	28 8
1913	39,370	21,452	47,618	108,440	43 9
1914	37,000	12,000	71,380	120 380	59 3
1915	37,220	13 615	107,867	158,702	68 0
1916	36,500	12,448	152,650	201 598	75 7
1917	39,370	13,258	213,070	265,698	80 2
1918	30,700	9,929	255,950	296 579	86 3
1919	34,285	7,350	285,225	326,860	87 3
1920	30,790	8 125	304 816	343,731	88 7
1921	19,837	2,890	271,233	293 960	92 3
1922	21,735	3,205	354,980	379,920	93 4
1923	22 580	5,420	384 771	412,771	93 2
1924	23,514	6,096	391,607	421,217	93 0
1925	27,386	6,735	481,826	515,947	93 4
1926	26,433	11,390	576,955	614,778	93 8
1927	30,952	6 740	567,504	605,196	93 8
1928	24,556	4,950	620,168	649,674	95.5
1929	22,639	6,890	838,370	867,490	96 5
1930	15,744	3,936	797,040	816,720	97 6
1931	13,320	2,680	788,152	804,152	98 0
1932	6,400	1,300	699,746	707,446	98 9

---

(1) HÜBNER, *op. cit.*, p. 235. — (2) In these figures there are included the other South American, Central American and Mexican kinds and especially the African varieties of mediocre quality Up to 1914 small quantities of Asiatic wild rubber were also included. — (3) The statistical data are incomplete and in part consist of estimated values.

Although during the period beginning 1930 several measures had been taken with the object of remedying the crisis, it was only in 1934 that an international complete scheme of restriction was successfully set on foot.

Before embarking on the examination of the first international agreement for the international regulation of the rubber market, it may be of interest to supply some tables showing the most important statistics up to the last years immediately preceding the 1934 agreement. These tables refer to: I. the world production of forest and of plantation rubber from 1922 to 1932; II. world production according to distribution from 1900 to 1932; III. world consumption from 1910 to 1932; IV. average prices in London from 1911 to 1930; V. monthly prices at New York from 1928 to 1933.

INTERNATIONAL AGREEMENT OF 1934.

After lengthy negotiations which began in July 1933 between rubber planters a system of control was at last successfully initiated which was published on 30 April 1934 by the International Growers' Association. From 7 May 1934 the Governments concerned signed the agreement whereby they undertook to ensure the application of the plan in question (1).

The following are the main features of this restriction scheme:

(*a*) its object is to regulate production and exports so as to reduce the existing stocks to a normal figure, to effect an orderly adjustment of supply and demand, to mantain costs at a fair level and one reasonably remunerative for the production as limited;

(*b*) with a view to realising these objectives:

(1) new plantations are prohibited, the existing sources of production having been considered as in excess of the essential requirements of the world demand,

(2) a special tax is to be collected by the Government on exports, a tax which will be earmarked for research into new methods of rubber utilisation;

(*c*) the plan is applicable to the following countries: British Malaya, Netherlands Indies, Ceylon, British India, French Indo-China, North Borneo, Sarawak and Siam;

(*d*) an International Rubber Regulation Committee has been constituted, the main function of which is to fix from time to time the percentage of the quotas exportable from the various territories. Representatives of the rubber industry in Europe and in the United States are to be invited to appoint an expert for the purpose of submitting views to the Committee on all questions bearing on the interests of rubber manufacturers. The Committee consists of 18 members appointed by the respective Governments: Malaya 6, Netherlands Indies 5, Ceylon 2, British India 1, French Indo-China 1, North Borneo 1, Sarawak 1, Siam 1. The duration of the agreement has been fixed at four years. It came into force on 1 January 1934 and will expire on 31 December 1938. The exportable percent-

---

(1) Economic Committee of the League of Nations. E. 901. Geneva, 5 April 1935. Co-ordination of production and sale. Note of the Secretariat

TABLE II. — *Rubber Production according to Continents from 1900 to 1932* (1)

(in long tons).

Year	Wild rubber (mainly)		Plantation rubber (2) Asia and Oceania	World production	Percentage of production in Asia and in Oceania
	America	Africa			
1900	34 028	15.526	2,779	52,343	5 3
1910	63,297	20,136	10,988	94,421	11 7
1911	58,350	18,280	17.517	94,147	18 6
1912	62,169	18,905	33.327	114,401	29 1
1913	50,622	16,025	53.644	120,291	44 6
1914	40,975	7.719	74.587	123,281	60 5
1915	46,362	8,139	116,371	170,872	68 1
1916	42,001	10,372	161,842	214,215	75 1
1917	46,389	10,445	221,453	278,287	79 6
1918	31,742	7,121	181,061	219,924	82 4
1919	43,858	7,020	349,092	399,970	87 3
1920	30,568	6,401	305,088	342,057	89 2
1921	21,894	3.568	277 516	302 978	91 6
1922	24,941	3,211	379,520	407,672	93 2
1923	24,386	4,848	380,271	409 505	92 9
1924	30,326	5.594	393.953	429,873	91 7
1925	36,325	7.791	488,290	532,406	91 7
1926	35,608	8,781	583.978	628,367	93 1
1927	37 219	6,400	567,792	611,411	92 9
1928	29,100	ca 5,500	627,620	662,220	94 8
1929	ca 25,106	4.414	832,660	862,180	96 6
1930	ca 16,680	ca 3,000	799,096	818,776	97 6
1931	ca. 14,000	ca 2,000	788,152	804,152	98 0
1932	6,440	1,260	699 746	707.446	98 9

(1) HüBNER, *op cit*, p. 236. The data contained in this table do not always correspond with those of Table I, but as based on precise and for the most part official statistics, they are to be considered as the most exact. — (2) Up to the world war there were also included data relating to wild rubber in shrinking quantities. Since the war practically only plantation rubber is produced in Asia and in Oceania.

ages will be fixed from time to time in accordance with the market requirements by the International Committee, and the proportional parts constituting the basis of the calculation of these percentages have been assigned to each country as follows:

	1934	1935	1936	1937	1938
Malaya	504	538	569	589	602
Netherlands Indies	352	400	443	467	485
Ceylon	77.5	79	80	81	82.5
British India	12	15	17	18	18.5
North Borneo	12	13	14	15.5	16.5
Sarawak	24	28	30	31.5	32
Siam	15	15	15	15	15

In regard to Indo-China it was agreed that no restriction should be applied to the production of this country until it should have exceeded 30,000 tons per annum (in 1933 the production was 17,191 tons). On any quantity of tons exceeding 30,000 and up to the equivalent of the actual French consumption

TABLE III. — *World Consumption of Raw Rubber* (= *Net Imports*) *from 1910 to 1932*

(in thousands of long tons) (1)

Consuming country	1910	1913	1916	1919	1922	1925	1926	1927	1928	1929	1930	1931	1932	Percentage of the world consumption			
														1910	2929	1931	1932
Unites States	42.2	52.2	117.6	238.4	296.4	390.0	365.0	375.0	440.0	470.0	371.0	349.0	393.8	43.0	58.4	51.6	55.8
Canada (2)	1.5	2.2	4.5	8.8	9.4	19.8	20.2	26.4	30.9	35.5	28.0	25.3	20.9	1.5	4.4	3.7	3.0
United Kingdom . . .	20.5	25.3	26.7	42.7	11.7	30.1	39.7	44.8	48.5	72.0	75.0	76.6	44.1	20.9	8.9	11.2	6.3
France (2)	3.8	6.5	14.7	20.1	27.7	37.5	36.9	36.0	38.0	61.8	60.0	47.7	41.7	3.8	7.7	7.1	6.0
Germany	13.7	16.3	2.0	4.5	27.6	33.9	22.8	38.9	37.9	49.1	47.0	39.2	45.0	14.0	6.1	5.8	6.4
U. R. S. S.	6.0	12.0	9.0	0.1	3.1	7.5	6.8	12.5	8.0	12.7	18.0	30.7	30.0	6.1	1.6	4.5	4.2
Italy (2)	1.8	2.5	4.8	9.9	6.4	11.4	9.8	11.3	12.4	16.2	18.0	10.1	15.3	1.8	2.0	1.5	2.1
Belgium	2.2	3.6		4.0	0.2	2.9	2.5	6.5	7.9	9.4	11.0	11.0	9.5	2.2	1.2	1.6	1.3
Scandinavian countr. (2)	1.1	1.2	1.8	3.2	1.7	2.9	3.3	3.4	3.7	5.4	6.7	5.6	6.6	1.1	0.7	0.8	0.9
Austria and Hungary .	2.0	2.8	0.5	0.3	2.6	2.5	3.0	3.3	3.5	4.5	4.0	4.0	2.4	2.0	0.6	0.6	0.3
Netherlands	1.8	2.4	0.2	2.3	3.8	0.9	2.7	0.6	2.2	3.2	2.9	2.2	2.8	1.8	0.4	0.3	0.4
Spain	0.4	0.6	1.7	3.7	0.6	1.5	2.2	2.1	3.0	3.0	2.6	2.6	4.3	0.4	0.4	0.4	0.6
Japan, (2)	0.7	1.2	3.0	10.0	15.0	11.7	17.1	18.7	25.0	34.0	33.0	43.5	56.0	0.7	4.2	6.4	6.8
Australia	0.4	0.8	1.5	3.5	2.5	5.0	9.0	9.5	8.4	16.0	5.0	7.7	12.4	0.4	2.0	1.2	1.8
Other countries	0.3	0.4	0.5	1.8	1.8	3.0	4.0	5.0	8.0	12.5	12.8	21.0	21.8	0.3	1.4	3.3	3.1
Total . . .	98.4	130.0	188.5	353.8	410.5	560.0	545.0	594.0	677.0	805.3	695.0	676.2	706.6	100.0	100.0	100.0	100.0

(1) HÜBNER, *op. cit.*, p. 242. Before the world war many countries included in the figures of fresh rubber consumption also those for old rubber material and reclaimed rubber. — (2) These countries do not distinguish between raw rubber and gutta-percha, balata, etc.

of the preceding year (consumption in 1933 = 71,022 tons) a 10 per cent. restriction is to be applied. Only on quantities exceeding the annual French consumption would the restriction percentage in force for the other producing countries be applied in full. A special scheme has been arranged for Siam.

The percentage of export quotas established for 1934 by the International Committee was 100 for June and July, 90 for August and September, 80 for October and November and 70 for December.

These restrictions were gradually intensified in the course of 1935; the percentage was fixed at 75 for the first quarter, at 70 for the second, at 65 for the third and at 60 for the last quarter.

During 1936 this last percentage was maintained during the first quarter, but was increased by 5 per cent. in the course of the second quarter.

At the same time the restriction percentage was not so effective in 1936 as might have been anricipated, in view of the increase in production, which rose from 996,500 tons in 1934 to 1,118,500 in 1935, and to 1,254,000 in 1936. Actually, whereas in 1935 the exportation of the countries taking part in the agreement amounted to 810,205 tons in 1935 as against 1,017,900 tons in 1934, in the course of the first months of 1936, with an export percentage fixed at 60, the export has been 130,634 tons, while during the same period of 1935, with an export percentage fixed at 15 per cent. more (75 per cent.), the exports amounted to 131,939 tons.

As might be expected the exportation from countries not bound by the agreement has shown a marked tendency towards increase. This fact has not however caused difficulties as the exports from these countries in the course of 1935 represented only 2.4 per cent. of the total rubber export.

TABLE. IV. — *Average Prices for the Standard Qualities of Raw Rubber according to Quotations in London (the prices refer for the period 1890 to 1910 to " Gardcure Fine Para " and for the period 1911 to 1933 to " First Latex Crêpe ".* (1).

Year	Average price		Year	Average price		Year	Average price	
	s	d.		s	d		s	d
1890	3	5 1/2	1907	4	4	1920		9
1892	2	9 1/2	1908	4	0 1/2	1921		10 1/2
1895	3	2	1909	7	1 1/2	1922	1	9 1/2
1897	3	6 1/2	1910	9	6 1/2	1923	1	3
1898	4	0 1/2	1911	5	5 1/2	1924	1	2
1899	4	3	1912	4	9	1925	2	11 1/4
1900	4	3 1/2	1913	3	0 1/4	1926	1	11 3/4
1901	3	8	1914	2	3 1/2	1927	1	6 3/4
1902	3	4 1/2	1915	2	6	1928		10 3/4
1903	4	1 1/2	1916	2	10 1/2	1929		10 3/8
1904	4	10	1917	2	9 3/4	1930		5 7/8
1905	5	6	1918	2	3 1/2	1931		3 3/16
1906	5	3 1/2	1919	2	1 1/2	1932		2 7/8
						1933 (March)		2 1/2

---

(1) Hübner, *op. cit.* p. 937.

TABLE V. — *Prices of Plantation Rubber (Crêpe, First Latex) from 1928 to 1933 in New York (cents per lb.)* (1)

Periods	1928	1929	1930 (2)	1931 (2)	1932 (2)	1933 (3)
January (first Friday) . . .	40 5/8	18 3/8	(3)	8 1/2	7	(5) 4 1/16
February » » . . .	37 3/8	22 3/4	15 7/8	7 3/4	4 3/4	3 11/16
March » » . . .	29 1/8	26 1/2	15 5/8	8 1/4	4 1/2	4
April » » . .	21 1/8	22 3/4	15 5/8	7	4 1/4	3 7/8
May » » . .	19 3/8	20 1/4	14 5/8	6 1/4	(5) 4 1/2	(5) 5 3/8
June » » . .	19 1/2	21 3/4	13 1/2	6 3/4	3 11/16	(5) 6 15/16
July » » . .	19	22 1/4	12 1/2	7 1/4	3 5/8	(5) 8 9/16
August » » . .	20 1/8	22 3/8	10 7/8	5 7/8	4 1/16	8 5/8
September » » . .	18 3/4	21	9 1/4	5 1/2	4 3/4	8 1/8
October » » . .	19 3/8	20 3/4	8 3/8	5	4 1/16	8 7/8
November » » . .	19 3/8	18 3/4	8 5/8	5 1/8	4 3/16	8 15/16
December » » . .	18 3/4	17	9 1/2	5	4 1/16	10 1/2
Annual average . . .	*22 5/8*	*21 1/4*	*12 3/8*	*6 1/2*	*4 3/8*	*6 15/16*

(1) International Yearbook of Agricultural Statistics, 1932-33 and 1933-34. International Institute of Agriculture. Rome, 1933 and 1934 — (2) Crêpe No. 1, thin latex — (3) Standard thin latex — (4) Not quoted — (5) Nominal

The consumption of crude rubber was 811,200 tons in 1933, 939,200 tons in 1934 and 947,600 tons in 1935; during the first months of 1936 it declined to 157,000 tons as compared with 163,900 during the same period in 1935.

Stocks which in 1933 were 616,400 tons rose to 679,000 tons in 1934 to fall in 1935 to 575,700 tons. During the first months of 1936 the stocks amounted to 539,000 tons as compared with 652,700 tons during the same period of 1935.

In respect of prices, in London the effects of the restriction have been somewhat considerable. From an average price of 3 1/4 *d.* per lb in 1933 there was a rise to 6 7/12 *d.* in 1934, and after a decline to 6 *d.* in the course of 1935 it again rose to 7 1/2 *d.* in the course of the first months of 1936 as compared with 5 3/4 *d.* registered in the course of the first months of 1935.

The valuable note in the *Economist* on the consequences of the agreement on the rubber market concludes by stressing the favourable effects of the agreement on the price of crude rubber and adds that this price is undoubtedly remunerative for the best growers. The decrease in consumption during the first months of 1936 is noted as being in relation with the price rise, contrary to the view of those who are inclined to consider these as independent phenomena, and the article ends by expressing the opinion that it would be in the interest alike of the growers and of the consumers that the International Rubber Regulation Committee should undertake to ensure rather an increase in consumption than a rise in prices (1).

F. ARCOLEO.

---

(1) *The Economist*, 30 May 1936, p. 476.

FARM ACCOUNTANCY IN THE PUNJAB (INDIA) FROM 1927-28 TO 1932-33

Farm accounts relating to certain irrigated holdings in the Punjab were published for the first time in 1927-28.* In 1928-29 the enquiry was extended to the districts of Jullundur, Ludhiana, Hoshiarpur, Amritsar, Multan, Rohtak and Jhelum. These regions of an ancient Aryan population are characterised by certain special conditions. The Punjab, although actually producing wheat and cotton in abundance, would be no more than a desert, had it not been for the engineering operations which rendered utilisable the shifting water courses of its rivers with their constant deposits of sand. The alluvial soils are less fertile than those of the Ganges, are extremely permeable, receive very little rainfall and are continually formed into dunes by the winds to which they are exposed; in consequence irrigation is essential. Irrigation, however, takes diverse forms according to the regions. In the foot hill regions of the Himalaya, there is a fairly abundant rainfall (about 39 inches of precipitation is registered), some part of the rainfall occurring from January to March; the water table is found everywhere from 16 to 19 feet below the surface. Towards the South, at Panipat, it is necessary to go to twice that depth. In the more arid districts of the West and South West, no cultivation is possible apart from large scale irrigation. Under British administration the earlier irrigation channels have been replaced or supplemented by perennial canals, or in certain cases by "Kharif canals." The area under irrigation from canals constructed before the war extends to about 6,800,000 acres. The Triple Canal Scheme, completed in 1917, draws off part of the waters of the Jhelum to traverse the *Doabs* which succeed each other up to the Sutlej.

In 1919 there were added to the immense areas already under irrigation 1,900,000 acres, with 3,330 miles of canals. The Sutlej Valley Scheme, recently accomplished, was designed not only to extend the cultivated area in the Punjab, but also to increase agricultural returns.

It was estimated that in 1925-26 the irrigated area was 10,500,000 acres. In these new settlements, railways and roads have been constructed by the Government, village sites have been laid out on a symmetrical plan, with streets at right angles and wells in the centre; the lands have been assigned in small holdings and the costs of operation covered by the sale of lands and of irrigation water. Not more than from 10 to 20 years sufficed for the transformation of these areas from jungle inhabited only by shepherds or robbers.

Irrigation makes possible the growing of valuable crops and in fact it is only in this way that the costs of irrigation can be met; hence the Punjab peasant farmers grow for export. Sugar cane has given place to cotton which covers from 20 to 40 per cent. of the cultivated area between Lahore and Multan; but the main source of the wealth of the Punjab is wheat which occupies from 20 to 40 per cent. of all the cultivated land, and in Multan from 40 to 60 per cent.

In the Canal Colonies of the Punjab poverty is practically non-existent. They cover an area of more than 5,000,000 acres out of the whole extent of irrigated territory, and the level of rural prosperity reached is probably higher than in any other country of Asia, not excepting Japan. Modern equipment is jointly owned by the farmers. The irrigation channels are replenished by the use of Persian wheels, a device for lifting water, bullock-driven.

The standard of living is higher in the Punjab than in the other parts of India. To live on the products of the soil, a family must own at least 13.5 acres at Lyallpur, and 20 acres in the Montgomery district, where the water is less plentiful. Holdings are: (*a*) under direct cultivation; (*b*) cultivated on a *batai* or share farming system, and (*c*) under cultivation with the help of *siris*, or associated workers. The *siri* does not receive cash wages, but a share of each of the products, except forage crops. In the *batai* system of farming, the payments in kind to the *kamins*, or servants, are usually made from the total production, previous to any division between the landowner and the tenant. The tenant harvests a part of the land himself, either by his own labour or paying hired labour in kind; the remainder is harvested at the joint expense of the tenant and the landowner. The wages rate is uniform and is 4 bundles of the gathered produce per acre. The same system is followed for the winnowing. Cotton picking is done by workers paid in kind, at the rate of one twelfth of the harvest.

The number of days worked yearly per acre is eight for oxen and from 17 to 22 days for men; at Lyallpur, where the average area of a holding is about 13 acres, a holding absorbs 170 man days per year. In some parts of India, where multiple cropping is not practised, the cultivators are idle for nearly nine months in the year.

The Board of Economic Enquiry has made the following calculation of the cost per acre of lifting water by Persian wheel for bringing an average crop to maturity on well-irrigated holdings under observation from 1928-29 to 1932-33:

Year	Total cost per acre					
	Including manual labour			Excluding manual labour		
	Rs	a	p	Rs	a	p
1928-29	48	0	4	32	11	7
1929-30	40	13	1	27	14	4
1930-31	32	10	8	20	11	7
1931-32	31	5	6	18	13	3
1932-33	34	8	0	21	11	1

(1) R - rupee, a = anna, p = pie. One rupee = 16 annas; one anna = 12 pice

The cost of this irrigation was lowest in 1931-32, since, owing to the fall in prices of agricultural commodities, the expenses on bullock labour were very greatly reduced. The increase in cost in the following year is due to an increase in overhead costs amounting to Rs./1/13/6 per acre, and to increased charges for bullock labour amounting to Rs. 1/0/4 per acre.

As the number of waterings required to mature a crop depends in the first instance on the amount and distribution of rainfall, a table may be given showing total rainfall over five years at the nearest recording stations to the farms under study.

Place	Rainfall in inches					
	Normal	1928-29	1929-30	1930-31	1931-32	1932-33
Jullundur	26.96	12.96	22.48	24.47	24.74	22.39
Nakodar (Jullundur)	22.47	14.21	15.51	22.45	20.37	24.10
Phillaur (Jullundur)	24.16	13.64	23.83	29.28	25.22	29.47
Ludhiana	26.21	18.47	22.27	25.02	25.88	26.41
Jagraon (Ludhiana)	21.01	13.47	17.09	21.99	23.02	18.15
Hoshiarpur	35.51	22.18	29.86	28.16	32.39	40.61
Tarn Taran (Amritsar)	22.24	19.41	21.44	21.74	23.25	10.76
Shujabad (Multan)	5.02	2.81	9.66	3.02	3.79	3.71
Sonepat (Rohtak)	23.00	11.35	15.91	11.61	21.79	24.46
Pind Dadan Khan (Jhelum)	17.58	12.83	19.90	16.02	9.11	21.52

It appears from inspection of these figures that 1928-29 was an exceptionally dry year. The rainfall of 1929-30 is seen to have been much more abundant and in 1930-31 it almost reaches the normal level; in 1931-32 the position is maintained and even improved, except at Nakodar and at Pind Dadan Khan. Comparing 1932-33 with 1931-32, it will be observed that in 1932-33 the total rainfall was higher at Nakodar, Phillaur, Ludhiana, Hoshiarpur, Sonepat and Pind Dadan Khan, and lower at Jullundur, Jagraon, Tarn Taran and Shujabad. In comparison with the normal rainfall, this rainfall was higher at six places and lower at four.

The following table shows the average figures of work done by a pair of bullocks on well-irrigated holdings:

Year	Days worked per pair per annum			Days worked per acre		
	Total	Cultivation	Irrigation	Total	Cultivation	Irrigation
1928-29	180.4	100.3	80.1	40.5	21.2	19.3
1929-30	165.3	88.7	76.6	41.3	21.0	20.3
1930-31	174.4	98.9	75.5	41.3	22.7	18.6
1931-32	155.2	82.4	72.8	32.6	15.8	16.8
1932-33	155.5	81.6	73.9	38.8	19.8	19.0
Average	166.2	90.4	75.8	38.8	20.0	18.8

Nearly half the labour of the bullocks is thus absorbed by the necessities of irrigation. The manual labour required for the working of the Persian wheel is usually provided by the cultivator and the members of his family.

Apart from the Multan district, where special conditions prevail well-irrigation is used in the *rabi* season, only that is, at the time of the growth of the cereal crops. In Amritsar some part of the holdings under observation receive both well and canal irrigation. Irrigation produces different results according to the quality of the soils, and the nature of the crops grown. It is probably on account of the poverty of the soil that in the Multan district indigo can be grown only when there is an early supply of water from the canal.

Among the conditions determining the wide variations in the annual returns of the holdings, there must be ranked the amount of the rainfall, the price movements of agricultural products and the measures taken by the Government in favour of agriculture.

The following table shows the prices of agricultural commodities in the Punjab from 1928-29 to 1932-33, per maund (82.284 lb.) in each case:

Prices of Agricultural Products (1).

Year	Wheat 1	Gram 2	Rapeseed 3	Gur (2) 4	Cotton: Desi (Indian) 5	Cotton: American 6
	Rs a p	Rs a p	Rs a p	Rs a p	Rs. a p	Rs a p
1928-29	4- 6- 0	4- 12- 0	7- 0- 0	6- 2- 0	10- 0- 0	13- 2- 0
1929-30	3- 2- 0	3- 12- 0	5- 12- 0	6- 5- 0	6- 15- 0	8- 15- 0
1930-31	1- 9- 0	1- 14- 0	3- 13- 0	4- 2- 0	4- 7- 0	5- 9- 0
1931-32	2- 1- 0	1- 13- 0	3- 8- 0	3- 13- 0	5- 7- 0	6- 10- 0
1932-33	2- 11- 0	2- 4 0	3- 8- 0	2- 12- 0	5- 10- 0	6- 14- 0

(1) Prices in gold francs give a different picture of the situation, as the rupee has considerably fallen. The following are the prices in gold francs

	1	2	3	4	5	6
1928-29	8 23	8 93	13 17	11.52	18 81	24.69
1929-30	5.85	7 02	10 76	11 82	12 99	16 73
1930-31	2 92	3 50	7 12	7 70	8.28	10 39
1931-32	3 08	2 71	5 23	5 69	8 12	9 89
1932-33	3 57	2 99	4 65	3 65	7 48	9.14

(2) Raw unrefined cane sugar in pieces.

A serious weakening of prices began to be noted in 1929-30 which became still more marked in 1930-31. As wheat is the most important crop in the Punjab, the return from the farm holdings fell considerably in 1930-31 (see below, table of returns). As soon as the economic situation became abnormal, the Government took measures with the object of relieving the strain on the farmers. A remission of 25 per cent. was made, in the rice and cotton growing areas, on land revenue when this exceeded the amount of Rs. 8/8/0 for rice and Rs. 7 for cotton per acre. Holdings in Rohtak, Amritsar, Montgomery, Lyallpur and Multan benefited by these remissions.

From 1930-31 to 1931-32, wheat and cotton prices advanced, the former by 32 per cent. and the latter by 21 per cent. There was no material change in gram prices in 1931-32; on the other hand, prices of rapeseed and of *gur*, which in 1930-31 had not shown so steep a fall as those of wheat and cotton, continued to decline. On the whole prices of agricultural commodities were more favourable to the cultivator in 1931-32 than in the preceding year.

In 1931-32 however weather conditions were far from favourable to the crops, which were damaged by violent winds and excessive rains in certain districts. In the districts of Lyallpur and Jhang the wheat suffered from the violence of the storms. The cotton crops and in particular the *desi* varieties were attacked by bollworm. Partial remissions were made on the land revenue, to a larger extent than in the previous year.

From 1931-32 to 1932-33, prices of wheat and gram advanced respectively by 10 annas and 7 annas per maund. Cotton prices continued to advance although much more slowly than before. Rapeseed prices remained at the level of the previous year, there being no foreign demand for this crop. The price of *gur* had fallen continuously since 1929-30; even in the year of lowest general prices, 1930-31, its price stood higher by Rs. 1/6/0 than in 1932-33; the low price figure in this latter year was due to large imports of *gur* from the adjoining districts of the United Provinces. The prices of 1932-33 showed generally an upward tendency, but they were still much below the pre-crisis level.

The condition of crops was on the whole better in 1932-33 than in 1931-32. Except in the districts of Sargodha, Multan and Amritsar, where yields were low owing to bollworm attacks and shortage of canal water, cotton gave good results on most of the holdings under observation. In the Lower Chenab Canal Colony the water supply at the sowing time of the *rabi* crops was inadequate, and as a consequence the area under wheat was below normal. Even after the sowing of this crop, there were frequent closures of the canal, but the winter rains were adequate. The season was exceptionally mild at the ripening season, and the wheat grains were accordingly plump and well developed. In some parts of the Province there was damage done by hailstorms, but on the whole the outturn was good.

In these conditions, it was not felt by the Government to be necessary to give general remission of land revenue, although in some regions a measure of remission was granted.

It remains to examine the financial position of the Punjab farmers during the five years under review. The table showing gross return, farming expenses and net return may be consulted for this purpose.

Only the figures in rupees per acre are here taken into consideration; the values in gold francs would not give an exact picture of the situation, as the rupee has been much affected by the variations in the exchange. The gold franc values will however supply points of comparison for European readers.

In 1928-29 and in 1929-30 earning capacity was lowest in the Multan district. In 1929-30 the canal water arrived too late and the indigo crop failed to grow. In 1928-29 the farmers of the Amritsar district did best; to obtain gross income as high as those obtained at Lyallpur, Rohtak and Jullundur, their expenditure was less, and the net income was double of the average net income. In 1929-30 there was a decline in the average net income; the gross income was reduced more or less considerably according to the districts. In one district only was there an increase, *viz.*, in Hoshiarpur.

From 1929-30 to 1930-31 the average gross income in rupees of the canal irrigated holdings declined by 48.8 per cent, and those of the well-irrigated holdings by 43.6 per cent. The Risalewala holding in the district of Lyallpur

Gross Return, Farming Expenses and Net Return on certain Punjab Farm Holdings from 1928-29 to 1932-33.

LOCALITY	Gross Return					Farming Expenses					Net Return				
	1928-29	1929-30	1930-31	1931-32	1932-33	1928-29	1929-30	1930-31	1931-32	1932-33	1928-29	1929-30	1930-31	1931-32	1932-33
Jullundur	83-15- 6 390.31	66- 5- 7 306.91	47- 7- 2 218.92	41- 6- 7 152.78	50-13- 9 167.02	45- 3- 6 210.19	42- 8- 1 196.63	35-10- 5 164.48	27- 2- 1 100.10	30- 3- 0 99.13	38-12- 0 180.12	23-13- 6 110.28	11-12- 9 54.44	14- 4- 6 52.68	20-10- 9 67.89
Ludhiana	39-11-11 184.74	39- 1- 2 180.74	24- 9- 6 113.47	20-10- 2 76.13	40- 6- 2 132.63	18- 8- 8 86.19	26-12-10 123.97	21- 2- 4 97.56	12- 4- 1 45.22	17- 3- 8 56.59	21- 3- 3 98 55	12- 4- 4 56.77	3- 7- 2 15.91	8- 6- 1 30.91	23- 2- 6 76.04
Hoshiarpur	60- 4- 1 280.07	72- 6-10 335.03	46- 1- 9 212.74	46- 0- 0 169.71	69- 4- 7 227.54	39-12- 6 184.91	40-15- 3 189 43	33- 7- 5 154 39	28- 9- 8 105.54	33-10- 7 110.55	20- 7- 7 95 16	31- 7- 7 145.60	12-10- 4 58 35	17- 6- 4 64 17	35-10- 0 116.99
Amritsar	87-10-11 407.55	53-15- 8 249.70	39-13-10 183.92	30-10- 8 113.13	49-13- 6 163.69	23- 5- 6 108.50	26- 3- 8 121 33	25- 6- 2 117.13	21-13- 6 80 58	26- 6- 3 86.67	64- 5- 5 299 05	27-12- 0 128 37	14- 7- 8 66 79	8-13- 2 32.55	23- 7- 3 77.02
Multan	33-14- 2 157 51	32- 1- 3 148.39	22- 2- 2 102.13	19- 5- 5 71.34	35- 1- 5 115.23	19- 2- 8 89.08	18- 7- 6 85 43	14- 4- 1 65.78	12-14- 0 47.49	21- 2- 2 69 41	14-11- 6 68 43	13- 9- 9 62 96	7-14- 1 36.35	6- 7- 5 23.85	13-15- 3 45.82
Rohtak	85- 1-11 395.65	70- 9- 0 326.41	46- 8- 4 214.64	43-15- 4 162.18	51- 6- 1 168.73	54- 1-11 251 56	52- 8- 9 243 08	33- 6-11 154.25	25-15- 4 95 78	27-10- 6 90 82	31- 0- 0 144 09	18- 0- 3 83.33	13- 1- 5 60.39	18- 0- 0 66 40	23-11- 7 77 91
Jhelum	--- --	— —	20-15- 4 96.69	32- 4- 3 119.03	40- 2- 4 131 84	— - -		20- 1-11 92 81	21- 7- 7 79 22	23- 3- 8 76 29	— —	— —	0-13- 5 3 88	10-12- 8 39 81	16-14- 8 55.55
Lyallpur	97- 8- 8 453.39	89-10- 5 414.72	49- 8- 5 228.50	50- 4-11 185.60	64-13- 6 212.95	43-10- 5 202 90	45- 3-10 209 27	37- 9- 6 173.45	31-12- 9 117 30	33- 9- 1 110.24	53-14- 3 250 49	44- 6- 7 205.45	11-14-11 55 05	18- 8- 2 68 30	31- 4- 5 102.71
Montgomery	65- 9- 7 304.91	63- 1- 8 291.91	40- 8- 9 187.06	38- 4- 6 141.22	50- 6- 0 165.43	22-14- 0 106.33	31- 0-11 143 67	26- 0- 5 120 07	19-14- 5 73 41	20-11-11 68.13	42-11- 7 198 58	32- 0- 9 148.24	14- 8- 4 66 99	18- 6- 1 67 81	29-10- 1 97 30
Sargodha	67- 5- 8 313 06	34- 0- 9 157.48	21- 7- 1 98.92	24-10- 0 90.86	33-10- 2 110,46	32- 2- 1 149 35	21- 8-11 99 71	14-10- 4 67 56	14- 8- 1 53 52	15-15- 4 52.41	35- 3- 7 163 71	12- 7-10 57 77	6-12- 9 31.36	10- 1-11 37.34	17-10-10 58.05
Averages:															
Canal-irrigated holdings	95-11-11 445 04	86-14- 6 402.02	47-10- 0 219.73	48- 4- 6 178.12	61-15-11 203.59	42-11- 9 198 63	43-15- 4 203.35	35-14-10 165.76	30- 3-10 111 57	31-11- 6 104 16	53- 0- 2 246.41	42-15- 2 198 67	11-11- 2 53 97	18- 0- 8 66 55	30- 4- 5 99 43
Well-irrigated holdings	63- 3- 1 293.74	50-15- 5 235.74	31-14- 3 147.13	30- 7-11 112 51	45- 2- 7 148.31	31- 1- 1 144 41	32- 7-11 150.32	24- 1- 5 111.12	19-11- 5 72.72	24- 6- 7 80.17	32- 2- 0 149.33	18- 7- 6 85 42	7-12-10 36.01	10-12- 6 39 79	20-12- 0 6.14
Total	87- 2- 0 404.96	77-14- 0 360.23	43- 1- 4 198.78	42-12- 9 157.90	56-13- 6 186.68	39-10- 4 184.27	41- 1- 3 190 03	32- 8- 2 150 00	26-15-11 99 61	29- 7- 7 96 80	47- 7- 8 220 69	36-12- 9 170.20	10- 9- 2 48.78	15-12-10 58 29	27- 5-11 89 88
Excluding the Risalewala farm (Lyallpur):															
(*a*) Canal-irrigated	64- 7- 1 299.54	53-11- 4 248.44	29- 8- 1 136.13	33-15-11 125.41	38- 3- 9 125.56	30-11- 9 142.85	29- 8- 4 136.55	21- 9- 6 99.63	19- 1- 6 70 45	19- 5- 3 63.47	33-11- 4 156.69	24- 3- 0 111 89	7-14- 7 36.50	14-14- 5 54 96	18-14- 6 62 09
(*b*) Total	63- 8- 1 295.17	51-11-11 239.37	31- 4- 3 144.24	31- 6-11 115.97	43- 2- 3 141.67	30-15- 9 144.01	31-10- 8 146.48	23- 6-11 108 11	19- 8- 9 72.11	22-14- 6 75.22	32- 8- 4 151.16	20- 1- 3 92 89	7-13- 4 36.13	11-14- 2 43.86	20- 3- 9 66.45

---

(1) The figures of the first series, for each group, are expressed in rupees per acre, those of the second eries, in gold francs per hectare.

is a Government-owned farm administered by the Department of Agriculture. As a model farm its yields were the highest in each year, but as the area is some 802 acres it cannot be included among the farms of *zemindars*, or rural landowners. Hence the average results give a misleading idea, and for this reason at the foot of the table the results of the Risalewala farm are deducted from those of the canal irrigated farms and from those of all the holdings taken together. The figures obtained show that in 1930-31 the gross income has declined in a much larger proportion than the farming expenditure. It is not surprising that the falling off in the net income follows the same course as that of the gross income.

The decline by stages of the net income was checked at the end of 1930-31. The reason for this is to be found in the reduction of the farming expenses in 1931-32, the gross income remaining the same as in 1930-31. This shows that the Punjab cultivators were better able to adapt themselves in 1931-32 than in the previous year to the new conditions brought about by the depression. The assistance received from the Government had contributed to their improved position. Multan is each year the district in which the net income obtained is lowest. The net incomes obtained on holdings in Ludhiana, Jhelum and Sargodha remained below the average up to 1932-33.

Owing to more remunerative prices and to a higher yield of wheat following on improved climatic conditions, the net income of nearly all the holdings was higher in 1932-33 than in 1931-32. If it is also somewhat higher than the net income in 1929-30, this is not on account of the gross income since that is well below the level maintained in 1929-30; it is because in 1932-33, in spite of the increase in irrigation costs, the farming expenses remained somewhat further behind the average of 1929-30 than did the gross income. The best results were obtained in the districts of Hoshiarpur and Lyallpur. Although the cotton plantation yields were affected, as already mentioned, by bollworm and shortage of canal water, the gross income and the net income in the Amritsar district were higher than the average; on the other hand, these unfavourable circumstances had an effect on the results of the farm holdings of Multan and Sargodha where natural conditions are less advantageous. Jhelum is also a region of poor returns. The holdings showing most elasticity of returns are those in the Jullundur, Lyallpur and Montgomery districts. In spite of this difference in results, the figures of the table show clearly the extent of the economic recovery in the watered and in the dry regions of the Punjab in 1932-33, a recovery which was noticeable as beginning in 1931-32 when the prices of agricultural commodities began to rise.

JOSEPH DESLARZES.

Works consulted:

Farm Accounts in the Punjab, in 1928-29, 1929-30, 1930-31, 1931-32 and 1932-33. Board of Economic Enquiry, Punjab.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

THE AGRICULTURAL DILEMMA: A Report of an Enquiry Organised by Viscount ASTOR and Mr. B. SEEBOHM ROWNTREE. P. S. King and Son, Ltd., London, 1935, pp. XII + 101.

ORWIN, C. S. and DARKE, W. F. Back to the Land, P. S. King and Son, Ltd, London, 1935, pp. 93.

STAPLETON, R. G. The Land, Now and To-morrow. Faber and Faber, Limited, London, 1935, pp. 336.

Of the three books listed above, the first two deal with the problem of land settlement in Great Britain; the third deals with the larger question of land utilisation.

" The Agricultural Dilemma " is the report of an unofficial enquiry organised by Viscount Astor and Mr. B. Seebohm Rowntree into the question whether it was possible to settle unemployed persons on the land to such and extent as would afford a useful contribution to the solution of the unemployment problem. This, at any rate, was the main object of the enquiry, but its scope was somewhat widened and the report became, in the words of the preface, " an attempt to survey objectively and thoroughly the possibilities of increasing the agricultural population. "

The conclusions are mainly negative. The report states categorically that it is illusory to suppose that agriculture offers a promising outlet for the absorption of unemployment. The grounds upon which this conclusion is based are fully set out. Briefly they may be thus stated. The imports into Great Britain of commodities such as fruit, vegetables, poultry and eggs, which could easily be produced in larger quantities at home and which represent comparatively minor interests to producing countries abroad have already been curtailed substantially in recent years, but this has not affected noticeably the declining trend of the agricultural population. By restricting drastically imports of such staple foodstuffs as wheat, beef, mutton and bacon, scope could be found for a substantial increase in domestic agricultural production, but the pursuit of such a policy would seriously aggravate the economic difficulties of the world, and would entail for Great Britain a substantial rise in the cost of living, a further loss of export trade and an increase of unemployment in the exporting industries. A drastic restriction of food imports would involve a reduction of the mercantile marine and of the ship building industry and though the volume of imported food supplies would be reduced the difficulty of securing those supplies in time of war would be increased. Moreover it would be impracticable to increase wheat production in Great Britain on the scale that would be necessary to lessen appreciably the dependence of the country on overseas supplies and the alternative policy of storage to accumulate a war reserve would be much less costly. The smaller family farms have displayed a remarkable power of survival under the difficult conditions of recent years, but it would be unreasonable to suppose that their numbers might be greatly increased. Most of the more successful family farms are largely dependent on the production of milk, which is already being produced on a scale markedly in excess of the demand at the current retail price. The specialised small holdings devoted to the intensive production of fruits, vegetables, pigs, eggs and poultry have, in many cases, done remarkably well in the past, but they have now to face a growing competition from the larger farms, which are more and more taking up these branches of production, and in the case of vegetables from allotments and private gardens as well.

While the report concludes that little is to be hoped from settlement schemes in which the men settled are expected to earn their livelihood from the land, it urges that the system of allotments might be extended with advantage and might be adapted so as to make a useful contribution to the relief of unemployment in the depressed areas.

The title of the second book, "Back to the Land," might suggest that it had a propagandist aim, but, on the contrary, it is an impartial survey of the various efforts made in Great Britain to promote small holdings and the conclusions reached are almost identical with those of "The Agricultural Dilemma." The authors show that the Small Holdings Acts have been moderately successful in providing an opportunity for agricultural labourers and other persons already engaged in agriculture or other rural occupations to obtain land and, if successful, to enlarge their holdings. They show, too, that the family-farmer, whom they regard as the real small holder, even if his holding exceeds the limits of area usually assigned to small holdings, is of fundamental importance in British rural economy. His standard of living can never be high, but his position gives him a stability that few producers of primary commodities enjoy. If times are bad, the margin between the receipts and the payments of the family-farmer may be very small, but there is generally some margin, and he adjusts his expenditure on his own living accordingly. Much of the farming land in the western half of England and, to a less extent, in the rest of the country is occupied by farmers of this type. They are successful when measured by the standard of life which satisfies them, but very different in every particular– upbringing, experience, character and physique— from the members of the industrial classes who would be involved in the movement "back to the land" They are men who have been bred on the land, and the only generalisation permissible from their example is that there is a living on the land for the man who is bred to it and who can occupy so much of it as will employ him and his family, full-time, with little or no additional labour

The authors set out the difficulties in the way of land settlement as a form of industrial relief, and reach the conclusion that the attempt to promote it for this object could only suceed at an enormous sacrifice demanded of the settlers themselves and of the rest of the community. As a palliative for unemployment they commend the provision of allotment gardens for unemployed workers, as carried out, for example, by the Allotments Committee of the Society of Friends, and urge the rapid extension of this work through local administrative bodies at the expense of the State.

Mr. Stapledon approaches the problem of land utilisation from a social rather than an economic point of view. His desire is to see the limited land surface of Great Britain used in such a way as to produce the maximum amount of health, pleasure, mental balance, and food for the population His book, accordingly, deals with many aspects of land improvement—notably the improvement of hill pastures, with which his name is specially associated- and many different methods of utilising the land for the better attainment of the objects that he has in view. The agrarian policy that he favours is the furtherance of owner-occupation.

ANNUARIO ITALIANO DELLE IMPRESE ASSICURATRICI 1936, ANNO XIV. Federazione Nazionale Fascista delle imprese assicuratrici, Roma-Milano.

The Fascist National Federation of Insurance Undertakings has published also in 1936 the Italian Year-Book of Insurance Undertakings. This volume, which has recently appeared, contains not only the balance sheet and the profit and loss accounts of Italian and foreign insurance undertakings in Italy, but also other interesting information, notably on the Fascist National Federation of Insurance Undertakings, on the Fascist National Association of Managers of Insurance Undertakings and on the societies and consortia formed amongst such undertakings There follows a list of local insurance companies, a list of companies that are being wound up, of bankrupt companies and of companies that have been forbidden to carry on insurance business, a list of commissioners for the ascertainment of losses, and, lastly, a brief statistical summary of the insurance industry in Italy.

The Fascist National Federation of Insurance Undertakings also publishes from time to time a collection of the laws, decrees and circulars that regulate insurance business in Italy. The last publication of this kind dates from 1934 and offers a remarkable contribution to the knowledge of the organisation of insurance in Italy. It is a large volume of 745 pages which deals not only with the legislation regarding private insurance, but also with the legislation relating to social insurance, with measures of a corporative character and various fiscal, social and other measures regarding insurance.

This rich material is arranged very scientifically, so that study and consultation are extremely easy and convenient. It is stated that a new edition of this important publication will appear next year.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

A DIRECTORY OF INTERNATIONAL ORGANISATIONS IN THE FIELD OF PUBLIC ADMINISTRATION. 1936. Brussels, Joint committee on planning and cooperation, [1936]. XV, 174 p.

ANNUARIO ITALIANO. Guida generale dell'agricoltura, industrie, commerci, arti e professioni dell'Italia e delle colonie. Edizione 1936-37. Milano, S. E. D. A I., [1936]. 1343 p.

Bibliography

ASSOCIATION FOR EDUCATION IN CITIZENSHIP, LONDON. Bibliography of social studies. A list of books for schools and adults. London, Oxford university press, 1936. XI, 111 p.

Co-operation.

AMERICAN COOPERATION, 1936. A collection of papers and discussions comprising the 12th summer session of the American institute of cooperation at the University of Illinois. June 15-19. 1936. Washington, D. C., [1936]. 750 p.

Credit.

BREITMEYER, E. Der nachstellige Grundkredit. Berlin, C. Heymann, 1936. XI, 177 p. (Deutscher Bodenkredit, Hrsg. von Wilhelm Kalveram, Bd. 2).

Commerce.

PERTHUIS DE LA SALLE, J. La politique française du contingentement. Macon, Protat, 1935. 108 p.

SCHOEN, A. Le marché agricole français et les interventions de l'Etat. Paris, Recueil Sirey, 1936. 358 p.

Industries.

ANNUARIO DELL'INDUSTRIA METALLURGICA MECCANICA E DELLE FONDERIE, 1936 Milano, Edizioni S. E. D. A. I, [1936]. 365 p.

Various.

ANDROVIČ, G. Dizionario delle lingue italiana-slovena. Milano, A. Vallardi, [1936], 2 v. en 1.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL ECONOMICS AND SOCIOLOGY

STUDY OF THE RESULTS OF FARM ACCOUNTANCY IN SCOTLAND IN 1932-33 AND 1933-34.

SUMMARY: Scottish farms under report — Value of the figures. — Governmental measures in 1932-33 and in 1933-34 — Distribution of the cultivated area and crop yields — Financial results in 1932-33: gross return, farming expenses, net return, prices. — Financial results in 1933-34 gross return, farming expenses, net return, prices.

The Fifth and Sixth Annual Reports of the Department of Agriculture for Scotland on the Profitableness of Farming in Scotland contain a detailed analysis of the accountancy results of 206 Scottish farms in 1932-33 and of 239 farms in 1933-34 (1). An extract will be presented here of the most important observations to be made thereon.

The number of the farms reviewed shows a yearly increase, and there is a tendency towards a more even distribution of farms between the various groups. In 1932-33 a new group, the fifteenth, was added.

The value of the enquiries based on the results of farm accountancy depends on the number of farms under report, their distribution and the continuity of the investigations. To quote from the Fifth Report: " By reason of increasing numbers, of the inclusion of a larger number of types and of greater continuity, the material presented approaches still more closely to an adequate basis for the consideration of the profitableness of Scottish agriculture in general. " The Department now considers the groups sufficiently representative to indicate closely the position of farms of similar type and in similar situations to those here defined. It is however advisable to consider the results only as a broad indication of the state of agriculture in large areas or in the country as a whole.

---

(1) In 1933-34, there is a change in the grouping of the farms of the North-east area as compared with the previous years. In this region 110 farms were under record as against 76 in 1932-33, and among the farms feeding and rearing live stock there were a number on which the receipts from sheep rearing were only slightly less important than those from the rearing and sale of cattle Such farms were very large and sufficiently numerous, and also similar, to be grouped apart. This regrouping, taking also size of farms into account, has resulted in six new groups of the North-east area, and it has proved necessary to remove these groups from the Table and to place them at the foot, as not comparable with the groups of the previous years.

The data here given will have value only in so far as significance is attached rather to their general effect and weight given to the comparison they afford between one type of farming and another and between one period and another. In short the data should be utilised not so much as *absolute values* but as *relations*.

During the year 1932-33, the Government measures for the assistance of British agriculture were numerous and varied in scope. Three types became effective during the period: the imposition of import duties, regulation of imported supplies, commodity marketing schemes. The Import Duties Act which came into force in March 1932 imposed a 10 per cent. ad valorem duty on all imports into the United Kingdom, exemption being allowed in the case of (*a*) certain commodities included on a free list, and (*b*) Empire products. In April 1932 increases in the duties up to 20 per cent. were imposed on certain of the imports, but subsequently in June reductions to 15 per cent. were made. The quantitative regulation of imports into the United Kingdom, under the Ottawa Agreements, and affecting imports of chilled and frozen beef, frozen mutton and lamb, bacon and hams, came into force only at the beginning of 1933.

The fact was that at the end of 1932 the wholesale prices of meat and of beef in particular were continuing to fall, and the Government attempted to relieve the market by concluding agreements with the Dominions and foreign governments, with the object of an immediate reduction of the volume of imports.

By the terms of the Wheat Act of 12 March 1932, the farmers receive for their wheat deficiency payments designed to meet the difference between the average market price and a standard price of 10s. a cwt. The average market price in that year being 5*s* 4.46*d*. per cwt., the farmers received 4*s*. 5.25*d*. per cwt. as compensation. The total deficiency payments received by the farmers of the United Kingdom in 1932 amounted to approximately 4,500,000 pounds sterling.

In 1933-34, amendments were made in the law on import duties; quantitative regulation of imports was continued, in part by order and in part by agreement; the Wheat Act remained in force. In this year the ascertained average price of wheat was 4*s* 7.63*d*. while the deficiency payment was 4*s*. 10.3*d*. Total payments to farmers in the United Kingdom in 1933-34 amounted to some £7,180,000 (1).

In 1932-33 and in 1933-34, certain factors tended somewhat to neutralise the effect of the imposition of tariffs; such were for instance the payment of export bounties by exporting countries, and fluctuation of exchange rates.

A number of changes have taken place in the distribution of the cultivated area, and in the numbers of cattle, sheep and pigs.

In 1932-33 farmers in the North-East reduced the area utilised for arable cropping in order to lay down permanent grass. In the Eastern area on the other hand there was a slight expansion of the arable acreage. In the Border area arable acreage was virtually the same as in 1931-32.

---

(1) For more detailed information, see the volumes for 1931-32, 1932-33 and 1933-34 of "The Agricultural Situation," published by the International Institute of Agriculture, Rome.

In 1932-33 the yields of cereals, root crops and hay were for the most part higher than those of 1931 and than the normal yields. The weather conditons were on the whole satisfactory. On the other hand in the North-east there were lower yields in turnips due to a reduced acreage sown, while an increased acreage was cut for hay to compensate for smaller yields of hay per acre. In the East the yields of all crops were above those of 1931-32, and the same is true of the Border area. The increased yields balanced, in the East, the reduction of the acreages of wheat, barley and turnips; and in the Border area, the decline in the acreage of wheat and barley. In the South-west area some reduction in supplies of hay followed from lower hay yields with approximately unchanged acreage mown.

The tendency towards increasing numbers of flock ewes apparent in previous years, was less pronounced in 1932-33, some small increase appearing only in the North-east and in the South-west areas. As regards herd cows no clear tendency can be observed. In most groups the numbers of live stock sold were smaller in 1932-33 than in the previous year. This is especially marked in the case of the Border sheeprearing and feeding farms (Group 10). The increase in the sales of cattle of the cheese-farms (Group 12) was considerable, and probably related to the increased size of farms and of herds Larger numbers of sheep were sold in the North-east and South-west areas where, as stated, there was some increase in flocks, and in particular of the farms of Groups 2 and 14.

In 1933-34 no material change was to be noted as occurring in the total area under crops; certain changes however occurred in the utilisation of the cropped area. The wheat acreage in the North-east, although still relatively of small importance, was two or three times greater than in 1932-33. In the Eastern area the wheat acreage was roughly one third greater, and in the Border area it was doubled. The acreage of the most important crop in the North-east area, oats, showed little change, but in the East and Border areas there was some decline to the advantage of wheat.

In the Eastern and Border areas the yield of cereals was in general somewhat higher than in 1932-33. In the North-east, the yield of oats was a little below that of the previous year. The yield of potatoes was appreciably less than in 1932-33 in the Eastern and North-east areas, and about the same in the Border area. In all the regions there was a reduction in the yields of the root crops and of hay.

On the large cattle-rearing and feeding farms in the North-east the average size of the herd is seen to have been reduced by one fifth, while the size of the herd on the cattle and sheep farms and on the dairy farms was slightly larger. Numbers of herd cows and bulls on the arable-stock farms of the Eastern area also show an increase. The dairy farms of the South-west show no change. Stock sales of the farms of the Eastern area show increases, and those of the lowland farms of the Border (Group II) show reductions. In the North-east and East, pig sales were larger than in 1932-33.

In Table II, the most important financial results are shown, and a brief comment may be added.

TABLE I. — *Area Cultivated and Products Sold by the Scottish Farms that Keep Accounts, in 1931-32, 1932-33, and 1933-34* (1).

Group		Number of farms	Average area in acres	Area cultivated, as percentage										Products sold					
				Wheat	Barley	Oats	Potatoes	Turnips	Total crops	Artificially sown grasses	Permanent meadows	Pasture	Total	Cattle head	Sheep head	Cattle head	Milk gallons	Wheat cwt.	Oats cwt.
NORTH-EAST AREA																			
1 Cattle-feeding farms with ewes	1931-32	18	356.4	0.4	1.6	19.6	3.0	9.9	34.5	47.3	6.8	11.4	100	82.3	383.1	30.6	—	—	724.2
	1932-33	22	468.3	0.6	0.5	17.8	2.8	7.9	29.6	39.2	8.4	22.8	100	89.5	423.8	39.2	—	—	1,105.0
2. Cattle-feeding farms without ewes	1931-32	5	242.3	—	—	34.8	5.4	15.1	55.3	42.0	1.2	1.5	100	61.4	0.4	22.0	—	—	819.7
	1932-33	8	244.2	1.1	3.3	31.3	3.7	13.7	53.1	38.1	6.1	2.7	100	59.5	187.5	32.8	—	—	896.1
3. Cattle-rearing and feeding farms with ewes	1931-32	27	253.0	0.4	2.5	17.0	1.2	10.4	32.4	42.4	11.8	13.4	100	32.3	221.0	26.2	—	—	—
	1932-33	23	252.4	0.3	1.8	17.5	1.5	9.3	30.4	40.1	13.8	15.7	100	30.3	267.4	28.4	—	—	—
4. Cattle-rearing and feeding farms without ewes	1931-32	16	114.5	—	4.4	24.8	1.2	12.8	43.2	43.8	3.8	9.2	100	20.3	43.4	7.0	—	—	—
	1932-33	10	107.5	—	1.8	25.5	1.3	12.2	40.8	43.4	0.3	15.5	100	17.6	12.8	9.6	—	—	—
5. Dairy farms	1931-32	6	209.0	—	2.1	23.8	1.2	12.4	39.5	56.5	4.0	—	100	44.2	93.3	36.8	—	—	246.2
	1932-33	14	170.9	—	2.3	25.1	2.3	12.8	42.5	55.0	2.1	0.4	100	42.3	95.1	20.4	—	—	—
	1933-34	25	201.8	1.5	0.5	23.8	2.2	12.0	40.0	54.4	3.1	2.5	100	47.1	106.1	28.4	—	—	—
EASTERN AREA:																			
6. Suburban farms	1931-32	5	293.5	15.8	1.2	24.0	17.4	7.1	65.5	20.7	13.8	—	100	8.8	59.6	115.0	—	951.8	—
	1932-33	3	304.5	15.8	0.5	28.0	18.5	6.2	69.0	17.7	13.3	—	100	19.0	96.0	136.0	—	1,605.7	1,255.0
	1933-34	3	303.7	21.8	1.0	23.0	19.2	4.9	69.9	17.1	13.0	—	100	13.7	62.0	144.7	—	2,122.5	893.0
7 Cropping farms	1931-32	16	355.3	9.8	13.7	12.5	15.3	14.0	65.3	17.2	17.5	—	100	110.0	553.2	38.4	—	662.4	470.9
	1932-33	19	336.4	8.9	10.5	16.6	16.5	12.9	65.4	17.8	16.3	0.5	100	119.1	415.9	24.9	—	831.2	866.5
	1933-34	16	348.5	12.3	11.2	13.5	16.2	12.7	65.9	16.1	17.4	0.6	100	123.2	422.3	38.3	—	873.4	801.1
8 Arable-stock farms	1931-32	6	432.0	4.7	5.8	10.0	5.8	8.8	36.0	26.8	37.2	—	100	104.6	565.3	18.6	—	—	—
	1932-33	8	322.2	4.4	1.5	15.6	5.2	8.5	35.2	30.9	33.9	—	100	72.0	443.4	43.9	—	347.1	632.1
	1933 34	16	373.0	6.7	1.4	10.5	6.8	8.7	40.1	23.0	34.3	2.6	100	68.5	302.4	38.9	—	516.0	413.1
BORDER AREA																			
9 Sheep-rearing farms	1931-32	6	935.7	0.1	0.1	9.8	0.5	7.3	17.8	45.5	12.7	24.0	100	63.0	1,108.0	23.3	—	18.0	454.4
	1932-33	9	892.0	0.2	1.0	9.6	0.5	6.5	17.8	41.7	24.3	16.2	100	60.8	1,028.9	14.1	—	—	442.1
	1933-34	9	867.9	0.6	1.2	9.9	0.6	6.7	19.0	37.0	20.7	23.3	100	49.2	956.3	9.2	—	117.7	478.0
10 Sheep-rearing and feeding farms	1931-32	13	483.4	2.6	8.2	12.4	1.2	11.6	36.0	37.2	25.4	1.4	100	70.0	750.3	29.1	—	145.8	397.4
	1932-33	14	447.1	2.1	5.8	16.3	1.7	11.2	37.1	30.7	31.3	0.9	100	40.9	703.4	23.8	—	189.1	567.3
	1933-34	10	575.7	3.5	4.8	12.4	1.7	10.7	33.1	36.3	29.1	1.5	100	58.2	828.1	23.3	—	481.4	525.1
11 Lowland sheep-rearing and feeding farms	1931-32	4	358.0	2.6	10.3	16.3	2.8	13.7	45.7	28.6	25.7	—	100	61.8	536.5	8.3	—	16.9	230.5
	1932-33	6	393.3	3.4	7.5	20.8	2.9	14.0	48.6	21.5	29.9	—	100	60.2	574.3	22.3	—	304.7	792.7
	1933.34	8	456.0	7.2	7.8	13.8	1.9	14.1	44.8	28.5	25.9	0.8	100	66.6	740.9	23.0	—	633.0	727.4
SOUTH-WEST AREA:																			
12 Cheese farms	1931-32	9	301.6	—	—	14.8	1.6	5.7	22.1	55.3	6.5	16.1	100	43.9	113.0	50.8	15,055	—	362.0
	1932-33	14	503.0	—	—	15.0	0.8	6.9	22.7	31.7	19.8	25.8	100	58.9	118.6	154.8	12,036	2.9	—
	1933-34	6	305.7	0.1	—	15.0	0.9	7.2	24.1	44.3	30.4	1.2	100	—	—	—	11,203	—	—
13. Semi-urban dairy farms	1931-32	21	157.4	1.2	—	15.2	3.3	5.4	25.1	58.2	13.3	3.4	100	40.2	66.9	4.1	24,889	33.1	100.8
	1932-33	26	171.5	2.1	—	14.4	2.5	6.8	25.8	51.4	13.8	9.0	100	44.7	58.5	6.9	21,267	70.8	82.3
	1933-34	20	186.9	2.2	—	13.8	3.0	6.4	25.4	52.9	14.2	7.5	100	51.5	114.3	12.5	23,550	60.3	145.2
14 General milk-selling farms	1931-32	24	176.7	0.4	—	13.1	1.3	3.4	16.4	46.1	26.2	11.3	100	28.4	67.4	3.1	19,090	7.4	39.3
	1932-33	19	256.2	0.3	—	7.6	1.0	2.3	11.2	30.9	23.4	34.5	100	23.7	89.4	4.9	17,421	12.8	27.5
	1933-34	26	162.3	0.9	—	12.7	1.4	3.8	18.8	43.6	30.9	6.7	100	27.8	80.3	4.7	17,815	—	—
15. Cattle farms	1932-33	11	219.8	2.7	—	14.2	2.6	5.0	24.5	47.3	19.9	8.3	100	42.1	121.3	1.8	—	75.1	125.7
	1933-34	14	248.6	2.3	—	10.7	1.6	4.6	19.2	17.7	25.3	17.8	100	47.7	148.4	—	—	92.0	114.7

---

(1) See the note at the bottom of the first page of this article.

Group		Number of farms	Average area in acres	Area		
				Wheat	Barley	Oats
1-*a*. Cattle-feeding farms, small and medium.	1933-34	13	187.5	0.5	1.4	26.3
2-*a*. Cattle-feeding farms, large	1933-34	11	360 7	2.1	4.2	26.9
3-*a*. Cattle-rearing and feeding farms, small .	1933-34	16	116.9	—	0.5	23.7
4-*a*. Cattle-rearing and feeding farms, medium.	1933-34	13	197.8	—	2.0	25.0
5. Cattle-rearing and feeding farms, large. .	1933-34	9	368.2	1.7	2.1	15.9
6. Cattle and sheep farms	1933-34	11	666.2	1.7	0.4	9.3

A. — FINANCIAL RESULTS IN 1932-33.

I. — THE GROSS RETURN.

The first noticeable fact is that the highest gross returns (amounting to between £2,000 and £3,000 per farm are found on the farms of the East and the Border, and that the cheese farms of the South-west (Group 12) show returns of similar magnitude.

In the Border area farms the average gross return was higher in 1932-33 than in 1931-32. The marked increase in that of the cheese farms of the South-west (Group 12) may largely be explained by the larger size of farm in 1932-33. A slight increase was apparent in the gross return of the cattle feeding farms with ewes in the North-east (Group 1); all other groups show declines, more particularly pronounced in the East.

Cattle rearing and feeding showed a general tendency in 1932-33 to give lower returns than in the previous year. This was also true of dairying for those farms where sales of dairy products form a large part of the total receipts. The returns from sheep, pigs and poultry were generally higher in 1932-33 than in the previous year, but on farms where this form of production is important, the returns from crops was on the other hand markedly lower than in the previous year.

The index number of wheat prices fell by five points from 1931-32 to 1932-33, but as a result of the Wheat Act and of the deficiency payments already mentioned, farmers received in 1932-33 a price higher by from 1*s.* 6*d.* to 3*s.* 6*d.* than the 1931-32 price. The index number of barley prices fell by nine points; farmers obtained a price of 6*d.* to 1*s.* less that of the previous year. The fall of oats prices was still more pronounced; the very large potato crop brought about a collapse in prices, which fell from £6 or £7 per ton in 1931-32 to £2 in 1932-33.

The fall of prices was less noticeable on the live stock and animal products market: some prices, those of store sheep, bacon pigs, milk and wool, even showed an increase. Declines of price occurred especially for fat and store cattle, cheese and butter. Cattle prices were lower by £2 to £5 per head in

cultivated, as percentage							Products sold					
Potatoes	Turnips	Total crops	Artificially sown grasses	Permanent meadows	Pasture	Total	Cattle head	Sheep head	Cattle head	Milk gallons	Wheat cwt.	Oats cwt.
1.4	12.0	41.6	53.6	4.1	0.7	100	51.9	122.4	26.4	—	—	408.5
3.7	12.4	49.3	47.2	2.2	1.3	100	109.2	208.0	44.1	—	—	1,489.1
0.9	10.6	35.7	45.9	4.2	13.2	100	14.2	86.8	8.1	—	—	191.9
1.3	11.6	39.9	40.5	8.6	11.0	100	28.9	103.2	41.0	—	—	311.8
2.4	9.2	31.3	36.3	15.2	17.2	100	43.1	344.0	78.7	—	—	325.8
1.3	5.1	17.8	31.4	8.8	42.0	100	61.3	615.2	32.3	—	53.6	658.9

all groups except the semi-urban dairy farms in the South-west (Group 13). Sheep prices were lower in all groups except the cheese farms and the semi-urban dairy farms (Groups 12 and 13).

2. — FARMING EXPENSES.

The net expenditure varied between the different groups in direct relation to the volume of production; it was heaviest in the Eastern and Border areas. Compared with 1931-32 there was a general tendency to reduction of expenditure in 1932-33. The groups recording an increase are Groups 1, 2, 11 and 12, such increase being largely attributable to the increased size of the farms in these groups.

3. — THE NET RETURN.

The recorded returns for 1931-32 have shown some slight improvement as compared with 1930-31. The data for 1932-33 however show that this improvement was of a transitory nature and that the year 1932-33 was one of increasing difficulty for Scottish farmers.

Changes in the situation were not uniform in all areas. The most serious decline in the returns occurred in the farms of the Eastern area, especially on the farms of Groups 6 and 7. On the other hand the position of the Border farms was somewhat improved as compared with the previous year. In the South-west, the returns were more satisfactory than elsewhere; in the North-east four out of the five groups showed considerably reduced returns while the farms in the remaining group (Group 3) showed a smaller average loss.

It is clear that conditions in 1932-33 were peculiarly unfavourable to cropping farms (Groups 6 and 7). On the other hand, the returns to dairy farms were well maintained, especially in the South-west.

In conclusion it may be said that:

(*a*) the decline in turnover in the cropping farms was largely due to the disastrous fall in the price of potatoes consequent on the unusually heavy crop. In certain cases the decline in receipts from potatoes was enough to account for the whole of the decline in profits.

TABLE 2. — *Gross Return, Farming Expenses*

	Group		Gross			
			Stock-breeding for slaughter and miscellaneous 1	Milk and dairy products 2	Pigs 3	Other animals 4
	NORTH-EAST AREA					
1.	Cattle-feeding farms with ewes	1931-32	693	7	101	237
		1932-33	625	47	146	321
2.	Cattle-feeding farms without ewes	1931-32	537	5	287	22
		1932-33	386	12	314	116
3.	Cattle-rearing and feeding farms with ewes	1931-32	371	78	83	132
		1932-33	323	24	118	219
4.	Cattle-rearing and feeding farms without ewes	1931-32	249	11	67	28
		1932-33	186	20	99	6
5.	Dairy farms	1931-32	—	1,549	118	93
		1932-33	—	1,181	90	66
		1933-34	—	1,181	137	131
	EASTERN AREA.					
6.	Suburban farms	1931-32	73	8	93	36
		1932-33	106	2	139	111
		1933-34	96	11	172	83
7.	Cropping farms	1931-32	901	23	32	183
		1932-33	636	20	38	380
		1933-34	753	9	86	447
8.	Arable-stock farms	1931-32	855	7	83	439
		1932-33	476	38	117	406
		1933-34	518	65	176	459
	BORDER AREA:					
9.	Sheep-rearing farms	1931-32	547	53	48	805
		1932-33	372	119	34	1,184
		1933-34	441	99	159	1,310
10.	Sheep-rearing and feeding farms	1931-32	677	62	124	764
		1932-33	452	22	187	914
		1933-34	510	66	153	1,187
11.	Lowland sheep-rearing and feeding farms	1931-32	594	44	38	441
		1932-33	492	42	106	681
		1933-34	567	5	97	1,105
	SOUTH-WEST AREA:					
12.	Cheese farms	1931-32	168	1,149	324	112
		1932-33	203	1,634	598	150
		1933-34	244	1,354	588	284
13.	Semi-urban dairy farms	1931-32	63	1,306	122	38
		1932-33	90	1,080	125	47
		1933-34	168	1,136	118	85
14.	General milk-selling farms	1931-32	126	864	220	49
		1932-33	133	711	192	68
		1933-34	197	802	112	74
15.	Cattle farms	1932-33	294	2	71	106
		1933-34	397	24	88	161

---

(1) See note at the bottom of the first page of this article.

and Net Return in Pounds Sterling per Farm (1).

return			Farming Expenses							Net return (7 — 14)
Vegetable production 5	Other branches 6	Total 7	Labour 8	Fertilisers 9	Seeds and fodder 10	Taxes 11	Other expenses 12	Repairs, depreciation 13	Total 14	15
572.5	131.5	1,742	531	152.4	294.1	8.0	266.5	92.0	1,344	398
513	106.0	1,758	606	126.1	312.4	9.0	272.6	102.9	1,429	329
753.4	81.6	1,686	484	133.3	195.2	4.4	276.7	83.4	1,177	509
492	126.0	1,446	530	97.4	242.4	6.9	250.5	108.8	1,236	210
178.9	125.1	968	407	59.9	187.2	6.0	243.1	71.8	975	— 7
175.8	86.2	946	381	58.9	163.1	5.8	160.1	61.1	830	116
113.9	79.1	548	199	27.4	96.4	2.3	46.1	41.8	413	135
75.2	7.8	394	176	29.1	67.0	1.9	71.3	26.7	372	22
189	138.0	2,087	586	75.6	417.7	2.8	368.8	122.1	1,573	514
206.1	78.9	1,622	423	67.5	338.2	5.0	410.7	113.6	1,358	264
246.1	123.9	1,819	441	76.5	372.7	5.5	306.2	101.1	1,303	516
3,299.2	403.8	3,913	1,136	486.1	318.5	55.4	370.4	207.6	2,574	1,339
1,949	365.0	2,672	1,078	439.9	152.5	39.7	348.0	131.9	2,190	482
2,429.3	443.7	3,235	1,018	387.4	254.3	36.0	340.5	228.8	2,265	970
3,444	217.0	4,800	1,608	525.3	801.7	24.0	353.2	301.8	3,704	1,096
1,994.3	124.7	3,193	1,379	363.2	559.7	25.6	441.7	257.8	3,027	166
2,173.6	439.4	3,908	1,348	391.1	701,8	23.2	412.8	261.1	3,138	770
1,361.2	187.8	2,933	1,061	275.0	754.2	17.4	252.5	226.9	2,587	346
579.1	104.9	1,721	640	136.4	461.3	8.9	269.9	134.5	1,651	70
658.5	287.5	2,164	650	182.8	511.3	11.2	247.7	168.0	1,771	393
382	100.0	1,941	983	171.8	577.3	17.4	336.3	150.2	2,236	— 295
265.8	111.2	2,086	866	133.2	414.0	15.2	244.2	134.4	1,807	276
368.9	135.1	2,532	796	111.5	632.1	17.1	338.5	167.8	2,063	466
477.3	161.7	2,266	1,019	135.7	875.1	19.5	287.0	217.7	2,554	— 288
508.8	121.2	2,205	871	121.3	502.3	16.4	292.6	153.4	1,957	248
811.3	153.7	2,881	924	162.5	675.1	20.7	267.8	163.9	2,214	667
708.6	112.4	1,938	823	100.5	599.0	18.5	216.9	103.1	1,861	77
711.8	40.2	2,073	869	174.7	560.4	14.9	305.2	151.8	2,076	— 3
783.6	79.4	2,640	907	148.4	719.6	17.6	355.0	179.4	2,327	313
156.3	112.7	2,022	528	133.3	560.3	9.5	250.6	96.3	1,578	444
190.5	90.5	2,866	946	164.8	746.9	14.1	263.7	157.5	2,293	573
184.4	53.6	2,708	671	115.4	822.7	12.9	253.4	117.6	1,993	715
151.7	106.3	1,787	409	98.0	524.2	10.9	164.5	90.4	1,297	490
106.5	158.5	1,607	387	80.2	389.8	9.4	179.7	68.9	1,115	492
182.0	269.0	1,958	385	95.8	492.9	10.2	174.5	72.6	1,231	727
49.5	90.5	1,399	336	75.0	429.4	7.6	138.1	65.9	1,052	347
42.9	88.1	1,235	320	57.1	399.0	7.7	140.6	55.6	980	255
79.2	82.8	1,347	296	61.8	367.8	7.6	121.0	50.8	905	442
202.3	211.7	887	277	89.8	151.5	6.0	135.2	62.5	722	165
209.4	224.6	1,104	262	81.2	162.3	5.7	79.6	47.2	638	466

Group		Gross			
		Stock-breeding for slaughter and miscellaneous 1	Milk and dairy products 2	Pigs 3	Other animals 4
1-*a*. Cattle-feeding farms, small and medium	1933-34	378	5	170	149
2-*a*. Cattle-feeding farms, large	1933-34	738	15	156	225
3-*a*. Cattle-rearing and feeding farms, small	1933-34	173	22	74	81
4-*a*. Cattle-rearing and feeding farms, medium	1933-34	327	25	174	110
5. Cattle-rearing and feeding farms, large	1933-34	512	22	278	363
6. Cattle and sheep farms	1933-34	367	13	151	767

(*b*) The relative improvement in the profitableness on the Border sheep rearing farms as compared with 1931-32 was due to the fact that the breeders in the earlier year had revalued their flocks at prevailing prices so that an abnormally heavy loss had been recorded in 1931-32.

(*c*) As cattle prices continued to decline, difficulties increased for farmers in the North-east area. The relatively small size of the farms, while limiting profits in good years, also has the effect of limiting losses which may result from price declines.

(*d*) In years of crisis, the dairy farmers are in a relatively favoured position. This is because of the sheltered character of the market for liquid milk. In addition the lag between receipts and expenditure is relatively short in dairy farming. With respect to the cheese farms, the decline in the price of cheese might have been expected to result in a greater decline in profits than the figures indicate. The general averages of 1931-32 and of 1932-33 are not strictly comparable, from the fact that the groups include dissimilar farms, but so far as can be judged from the data it would seen that the net return was maintained in 1932-33. If the number of farms grouped under 12 had been greater, the result would have been different.

(*e*) In spite of the various measures taken by the Government, the general effect of the depression in 1932-33 was to render the situation of Scottish farmers more difficult.

B. — THE FINANCIAL RESULTS IN 1933-34.

1. — The gross return.

The highest gross returns were obtained in the East, where a level of between £3,000 and £4,000 per farm was reached; the lowest on the cattle rearing and feeding farms in the North-east. Returns are also high on the cheese farms of the South-west and on the arable-stock farms of the Border.

return			Farming Expenses							Net return (7 — 14)
Vegetable production	Other branches	Total	Labour	Fertilisers	Seeds and fodder	Taxes	Other expenses	Repairs, depreciation	Total	
5	6	7	8	9	10	11	12	13	14	15
169 6	63 4	935	290	52 7	146 2	3 8	109 6	33 7	636	299
649 8	109 2	1,893	610	140 8	286 3	10 8	265 9	97 2	1,411	482
51 1	29 9	431	124	20 7	64 6	1 8	49 5	16 4	277	154
132 8	93 2	862	294	58 9	174 6	4 1	49 9	43 5	625	237
258 7	188 3	1 622	552	91 2	291 6	14 0	192 9	104 3	1,246	376
272 5	106 5	1,677	464	92 0	264 0	7 8	280 0	68 2	1,182	495

In the North-east there is a similarity between the groups of cattle feeding farms and the cattle feeding and rearing farms. Only the branches of less importance, pig breeding, poultry, egg production, crop production, differ somewhat from one group to another.

The suburban farms of the Eastern area showed a gross return appreciably higher than in 1932-33; the group comprised the same few farms in the two years. The rise in gross return is essentially due to the increase in crop receipts.

In the South-west area the gross return for each group is higher than in 1932-33, except in the case of the cheese farms.

Prices, in 1933-34, were in general tending upwards again. Wheat prices fell, but acreage under wheat increased as a result of the encouragement given by the deficiency payments Barley prices were decidedly better as much as *2s.* more per cwt. being obtained, reflected in the results of farms of the East and the Border. Oat prices remained at a low level; the production of oats tended to be reduced in favour of other crops. The prices of store cattle fell more appreciably than fat cattle prices. Farmers rearing and selling store cattle did worse than in 1932-33; those buying to feed and sell fat did better.

Prices of fat and store sheep and of wool improved, and farmers in the Border area profited thereby to some extent. Pig prices were appreciably better in 1933-34 giving improved returns to farmers in the North-east and Eastern areas. Milk prices also were higher than in the previous year; on the other hand cheese prices were lower.

It has to be remembered that any rise in prices is due in part to the measures taken by the Government, and in particular to the imposition of import duties and to the regulation of imports by quota and by gentlemen's agreements. It would be difficult to say in what proportion these factors have contributed to improve the situation.

TABLE 3. — *Index-numbers in 1931-32, 1932-33 and 1933-34 of the Principal Agricultural Products and of Agricultural Requisites.*

Commodity	Crop year (September to August)		
	1931-32	1932-33	1933-34
General agricultural produce	114	106	113
Wheat	79	74	63
Barley	101	92	112
Oats	101	82	82
Potatoes	230	108	107
Hay	73	67	82
Fruit	132	178	142
Vegetables	158	130	163
Fat cattle	118	103	100
Store cattle (1)	117	100	88
Fat sheep	110	103	120
Store sheep (2)	78	84	110
Bacon pigs	92	96	112
Pork pigs	102	102	120
Poultry	133	127	121
Eggs	110	107	103
Milk	139	147	161
Cheese	124	114	107
Butter	106	94	91
Wool	45	66	80
Feeding-stuffs	94	88	84
Fertilisers	90	89	90
Labour (3)	178	166	163

(1) Calculated from index-numbers for September to November and April to June inclusive. — (2) Calculated from index-numbers for August to October, inclusive, of the later year. — (3) 1914 = 100.

2. — FARMING EXPENSES.

Farming expenses increased decidedly on the cropping farms of the East, on the suburban farms of the East and on the Border lowland farms.

3. — THE NET RETURN.

The lowest net return, in the North-east, was obtained by the small farms rearing and feeding cattle; the highest by the dairy farms.

In the East, the Border and the South-west, the net returns were higher than those of 1932-33. The position of the arable-stock farms of the East was, however, to quote the Report itself, very unsatisfactory. In the Border area, the variation in individual farm results was so great that average values indicated little.

The number of the cheese farms taken as sample in the South-west was too small and the variation in their individual results was too wide for the average net return to give an exact idea of the situation of these farms as a whole. The semi-urban dairy farms of the South-west were in the most favourable position, as their average net return was high and in no case was a loss recorded.

As the composition of the groups of farms under survey varies considerably from year to year, it is of advantage to examine the results as obtained only on those farms providing accounts for two consecutive years.

Such an examination does not lead to any change in the conclusions already reached, but gives a somewhat clearer idea of the variations in profitableness. Whereas in 1932-33 some 53 per cent. of the farms providing two years' records showed lower net returns than in 1931-32 and only 47 per cent. showed higher returns, of those surveyed similarly in 1933-34 the percentage of those obtaining better results than in 1932-33 was 86.

By way of conclusion it may be said:

(*a*) In the North-east, the improvement in the position of dairy farming came about prior to the introduction of a marketing scheme. In the South-west the improvement is to be attributed to the operations of the Scottish Milk Marketing Scheme.

(*b*) In the North-east, the returns are so far not commensurate to the efforts made to develop cattle rearing.

(*c*) In the East, the improvement in incomes was due to increased returns from crops and in a much smaller measure to better returns on sheep. On the arable-stock farms, however, less profit was drawn than in 1932-33 from sheep. The deficiency payments made under the Wheat Act were of great assistance to farmers.

(*d*) In the Border area, the improvement in the position of farming was due to larger returns from crops together with some improvement in returns from sheep. Deficiency payments for wheat were also of assistance here, although to a less degree.

(*e*) The profitableness of the farms on which accountancy results have been ascertained is better in 1933-34 than in 1932-33. It would appear that the lowest point of the curve has been reached and that the situation is recovering. At the same time the position of the farms not mainly engaged in milk production is still far from satisfactory.

JOSEPH DESLARZES.

Works consulted:

Fourth, Fifth and Sixth Report on the Profitableness of Farming in Scotland 1931-32, 1932-33, 1933-34. Department of Agriculture for Scotland, Edinburgh.

PROTECTION OF AGRICULTURAL PRODUCTION AND OF THE EXPORT OF AGRICULTURAL PRODUCTS IN SOME SOUTH AMERICAN COUNTRIES: RESULTS OF THIS POLICY

SUMMARY: *Argentine Republic:* The National Plan of Economic Action, its principal legal manifestations and its results. — *Brazil:* Coffee-growing and the new direction given to agricultural production. — *Uruguay:* Action taken by the State in the last two years for the defence of agriculture.

The protectionist policy instituted within the last few years in the importing countries in view of meeting and overcoming the difficulties originating in the crisis which began to be felt in 1929 has had its least favourable effects in the countries the economy of which is based on arable farming and stock-breeding.

Accordingly it will not be without interest to enquire into the manner in which three countries markedly agricultural in character, the Argentine Republic, the United States of Brazil and the Republic of Uruguay, have endeavoured first to protect their crop and live stock production and secondly to maintain a prosperous exportation.

I. — THE ARGENTINE REPUBLIC.

The series of legal measures beginning with the Plan of Economic Policy place the *Argentine Republic* in the first rank among the countries which have played their part with most signal success in the struggle against the consequences of the world crisis. After the years 1927 and 1928 during which this country passed through a period of prosperity, in 1929 there set in a phase of depression due to a number of causes, among them as affecting external trade the fall in prices of crop and livestock products, and acting internally the collapse of the public finances. During 1929 the failure of the New York Stock Exchange brought about a general fall in values which resulted, in Argentina, in the withdrawal of considerable capital. At that time the mechanism of conversion was still in working order, there were no obstacles to prevent the exodus of gold and in a few weeks this exodus has amounted to more than 200,000,000 pesos. With a view to stopping this drainage and to checking the fall of the paper peso, the closure of the Conversion Bank was decreed. The consequence of this was that the sums in circulation were no longer regulated by the actual incoming and outgoing of specie, and that the economy of the country took its natural course and was exposed to all the untoward circumstances that may affect a country without reserves and having a somewhat unstable agricultural economy. On the other hand it was observed that the public expenditure was constantly going up, that the Treasury payments were in arrears, that the public debt was increasing, and that all these factors contributed to a growing deficit in the national budget. At the same time the existence of the world crisis became clearly evident together with the decline in the prices of crop and live stock products which represent the total of the Argentine exports.

Argentina is a debtor country and thus requires every year a certain quantity of money from abroad to provide for the payment of the interest on its foreign debt, for the payment of the interest on foreign capital invested in national undertakings, and for other services. The only practicable method of obtaining the money needed in Argentina for these services is that of endeavouring to secure by every means an export surplus so as to render the favourable trade balance as large as possible, especially at a time when the conditions of the world money market prevent the influx of new capital. It is for this reason that the Argentine Republic has made provision for the improvement and regulation of its crop and live stock production, the sole source of its national wealth, and for the protection of the export of agricultural products so as ensure the availability in the country of such sums in specie as are indispensable for the maintenance of the prosperity of its economic life. Such was the objective which determined the whole course of the legislative enactments which began with the Plan of Economic Policy and were completed by the establishment of a series of organisations or representative vocational councils dealing with the entire crop and animal production of the country. These organisations are: the National Meat Council, the Council for Regulation of Wines, the Commission of Control of the Production of and trade in Mate, the National Grain and Grain Elevators Commission, National Sugar Commission, Textile Fibres Commission, Council of Regulation of the Dairying Industry, National Oil Commission, Foodstuffs Commission and the National Cotton Council.

The first step towards financial restoration was taken by a reduction in the expenditure as shown on the national budget and by increased strictness in the imposition of taxes; it was on this basis, which was clearly the one to adopt in view of the imperative necessity of safeguarding the national credit, that the economic plan of protection was established. The first manifestation of this plan was the *conversion of the bonds of the internal debt*, the object of which was merely to reduce the pressure of the fixed charges on the country, not by repudiation of engagements but by their maintenance while at the same time fulfilling the duty of reducing the public expenses. This policy of reduction of the interest charges by conversion benefited the great mass of the debtors to the Banks as well as very many growers whose trading interests were dislocated by the fall in prices. The conversion was primarily designed to benefit the working population. The reduced rate of interest was fixed at 5 per cent., as being the rate best corresponding to the situation of the financial market.

The Decree of Conversion of these bonds of the internal Debt (No. 31,131) was passed on 11 November 1933. The text establishing the rate of interest of the new bonds reads as follows: " The National Public Credit will proceed to the exchange of all bonds or notes issued by the Government of the Nation, now in circulation at 5 1/2 and at 6 per cent. of interest, against issue of bonds of different series, issue in paper pesos which will bear the denomination Internal Argentine Credit (*Credito Argentino Interno*) at 5 per cent. oi interest and one per cent. of annual cumulative amortisation, obtainable by purchase or by bidding at auction when they are quoted below par, and by drawing when they are at par or above par; there will also be issued the Patriotic Loan (*Emprestito*, *Patriotico*) at 5 per cent. interest and one per cent. cumulative amortisation by drawing at par."

The bonds of the Debt undergoing conversion represented in round numbers 95 per cent. of the total of the issue, while 5 per cent. at most were redeemed; in other words it may be said that out of 1,600,000,000 of paper pesos in circulation, 1,500,000,000 were converted into new bonds at reduced interest.

At the same time as this Decree of conversion of bonds the Government published a second decree (No. 31,797 of 14 Novemer 1933) in viitue of which the *mortgage debentures of the Mortgage Bank of Argentina* were submitted to conversion. This new conversion had a direct influence on Argentine agriculture since the larger proportion of the operations effected by the Mortgage Bank related to agriculture. The object of the new operation was to favour the rural grower, who, since the rate of interest was lowered on the new bonds would need to pay less to the Bank for its mortgage services. The conversion of these debentures is effected in the same conditions as those of the bonds already mentioned, *viz.* with a reduction of from 6 to 5 per cent.

The advantages of the two conversions for agriculture have been great; the reduction of the interest by one per cent. and the extension of the date of expiry, which was again extended to 36 years, contributed to re-establish the equilibrium of economic life which had been so deeply affected by the world crisis. As a consequence of this crisis, growers and breeders had found themselves forced to pay for costs of borrowing three times more than before the crisis, while thanks to the decree of conversion and to other measures payment for these services was gradually reduced and approaching a normal level. In addition, the State, by the conversion of the bonds, and the Mortgage Bank by the exchange of its debentures, have at disposal funds enabling the Government on the one hand to realise with increasing effectiveness the policy of protection of agricultural production and exportation, while the conversion provided the Bank with more ample funds to distribute among growers thus securing with more certainty their attachment to the land.

Another of the measures that form part of the Plan of Economic Action of the Argentine Government is the *control of the exchanges* exercised with the object of influencing favourably the prices of crop and animal products. These prices are determined by those of the world market expressed in various monetary units, variable or invariable according as they are or are not based on the gold standard.

Taking into account the fact that Argentine economic life is mainly dependent on its trade with other countries, the measures just described, especially those relating to the control of exchanges, are directed towards the improvement of the agricultural situation by means of price raising, as well as that of the national export trade which, it may be repeated, is concerned exclusively with the products of arable farming and stockbreeding. Any fall in exports is at once reflected in an abrupt shrinkage of the volume of the internal economic activities of the nation. It is difficult to mention a single branch of the Argentine economic activities which is not perceptibly and directly affected by the vicissitudes of crop and animal production. For this reason, the fall in the value of agricultural production and export difficulties in respect of the products are immediately reflected in the diminished purchasing power of the population as a whole. It is consequently of the first importance to protect this production and the export of the products.

This discussion has been confined to the objectives which the Argentine Government kept in view when issuing the Decrees as to conversion of the bonds of the debt and of the mortgage debentures, and in creating a new system of control of exchanges. Owing to the strictly financial character of the legal forms which regulate and underlie these measures, they necessarily fall outside the scope of this article. All that is attempted here is to outline the method adopted by the Government for protecting the crop and animal production and the export of products, and it is unnecessary to reproduce in detail the substance of the Decrees.

At the same time, in reference to the new system of control of exchanges, mention should be made of an element of profit of which the Public Treasury takes advantage so as to recoup itself for the higher cost of other services. The method of effecting this profit on the exchanges is as follows: the foreign currency resulting from the exports is negotiated by the official market; before making shipments, the exporters must sell to the banks at the price fixed by the Minister of Finance the bills of exchange held by them for the corresponding sums in foreign currency and must place them at the disposal of the Office of exchanges which sells them at the auction price obtained. The difference between the purchase price and the selling price constitutes the profit fund referred to above which is, among other uses, devoted to financing the operations of the Grain Regulation Council in the form of export premiums, the object being to ensure that the advantages of the devaluation of the Argentine peso shall take effect on the prices of wheat.

Mention may also be made of the favourable results of the Trade Convention concluded with Great Britain signed on 1 May 1933, which, as compensation for the reductions in the imports of Argentine meat into the United Kingdom, established a system of exchanges advantageous for the frozen credits by means of the issue of a loan earmarked for the purpose of liquidation of these, and also lowered the customs dues on certain commodities coming from Argentina, thereby establishing in this Convention a favourable treatment for the imports from Argentina of wheat, maize, linseed and wool, into England.

The general economic situation being this cleared by means of the conversion measures and the level reached which would correspond to the national money and to the prices of the crop and animal products, the Government proceeded to the institution of Regulative Councils (*Juntas reguladoras*) with the function of watching over the interests of the producers of the two main sources of Argentine wealth, cereals and meat. Subsequently the activity of these organisations which are in reality representative vocational groupings of a corporative character, has been extended to all the various branches of Argentine farming, to the vine growing and wine making industries, to mate, sugar, milk and its derivatives, to textile fibres, to oil and latterly, by the establishment of a National Council, to a product of great future importance for Argentina, cotton. The State intervention in these organisations, which at times have merely advisory powers but which at other times exercise wider powers of autonomy and command large resources of their own, simply means that the Government assumes the function of a new intermediary acting between producers, dealers and shippers of the different commodities in question, so as to avoid undue market fluctuations and to protect the national interests with fairness to all other.

As a sequel to this brief summary of the series of measures adopted by the Argentine Republic for the protection of its crop and animal production and of the resulting exports, it is desirable to examine, now that a period of three years of evident recovery has elapsed, the effects of these important modifications which were introduced into the economic life and the banking structure of the country, in other words to define the present position of Argentina in the campaign against the depression which since 1929 has affected the world economy.

The collapse of the world economy at the end of 1929 brought home to each country and in particular to the debtor countries the necessity for regulating their balances of payment without reckoning on foreign contributions. In Argentina the trade balance proved to be closed with a deficit amounting to a total of 284,500,000 of paper pesos. In view of such a situation, a policy of contraction of imports was entered upon whereby the situation was improved each year until in 1932 a favourable balance was achieved of 451,000,000 pesos, enabling the country to meet without anxiety the commitments which constituted its debt and to close its balance of payments without an adverse balance. This however is a result rather of the crisis affecting the country than of an official policy, and one achieved notwithstanding the higher tariffs. The truth of this appears from the fact that the improvement shown by the favourable figures of 1932 took the form of an increase in purchases from abroad at a moment when, although the volume of exports remained constant, their value was decreasing with the world fall in the prices of crop and live stock products, and moreover when the favourable balance of 223,700,000 of national money on the trade balance of 1933 was not enough to cover the requirements of the transfers abroad which the country was obliged to effect. This state of affairs persisted and at the end of 1933 the situation became so entangled that the Government was compelled to intervene with the result that in 1934 a favourable balance of 328,500,000 pesos and in 1935 one of 367,400,000 was obtained. It was by means of this last sum that Argentina effected a closure of its commitments abroad.

The figures relating to the external trade of Argentina from 1930 to 1935 are subjoined:

Argentine External Trade in Thousands of Paper Pesos.

	Exports	Imports	Balance
1930	1,679,962	1,395,690	— 284,272
1931	1,173,828	1,455,815	+ 281,987
1932	836,263	1,287,783	+ 451,520
1933	897,150	1,100,562	+ 203,412
1934	1,109,932	1,438,434	+ 328,501
1935	1,174,981	1,542,372	+ 367,391

From these figures the favourable result from the State intervention is clearly evident; as a matter of fact, during the financial year in which the plan of protection of the economy was initiated the trade balance closed with a favourable balance of 328,500,000 pesos and in 1935 with one of 367,390,000.

This favourable balance is characterised by the predominance of crop and live stock products in the exports; thus it appears that (1) in 1934 the increase as compared with the 1933 figures was 10.7 per cent. while in 1935 it was 17.1 per cent. Agricultural exports, properly so-called, of maize, linseed, rye, canary grass, cotton fibre, potatoes, fresh fruits in 1935 were larger by a volume of 100,000 tons and a value of 60,362,000 paper pesos than those of the preceding year, while the increase in the export of stockbreeding products was 63,000 tons for a value of 45,254,000 pesos. Shipments of wheat, rye and oats fell off in 1935 as compared with 1934, but the increase in the export of other agricultural products was so considerable that, on the whole, the fall in the former was largely compensated.

With a view to supplying a more exact picture of the present situation of production and exportation of the crop and live stock products of Argentina, as resulting from the measures of protection undertaken by the Government, a statement may be given of the trade in the two types of products in 1934 and in 1935.

The gradual recovery in respect of wheat of the former satisfactory position is due to the smaller harvests of the last two years resulting in an improved statistical position, to the repeated State intervention which had the effect of raising prices, and also to the standstill, it might almost be said the lowering, of the barriers established by the principal countries importing wheat. The decrease in production in 1935 was nearly 50 per cent. as compared with 1933 and 40 per cent. as compared with 1934; on the other hand prices went up, reaching their peak in December 1935, when the *Junta Reguladora de Granos* fixed a minimum price of 10 paper pesos per 100 kg. of wheat.

As regards maize it has already been remarked that the production and export of this cereal was so exceptional, during the two years under review, that the advantageous position of the trade balance was successfully maintained in spite of the poor results of the wheat harvest. This high production affected the prices, which began to fall, but by the action of the Government, exercised through the medium of the *Junta Reguladora*, a minimum price was fixed of 4.40 pesos per 100 kg. of maize. The average price reached by maize exceeded the fixed minimum rising to 4.77 pesos per 100 kg.; this price was lower than the average of 1934, 5.72 pesos, but higher than that of 1933 which was only 4.05 pesos. A lowering of the transport rates on maize formed another aspect of the Government policy of protection of agricultural production.

The importance of linseed in Argentine economy becomes evident from the following fact: 50 per cent. of the world production of linseed comes from

---

(1) All statistics have been supplied by the *Dirección General de Estadística* of the Argentine Government.

Argentina (this country produces on an average 1,280,000 tons out of a world production of 2,500,000 tons). The *Junta Reguladora* in December 1935 fixed as minimum price for this product of 14 pesos per 100 kg. The export of linseed is constantly on the increase.

An examination of the main characteristics of the live stock production and of the export of its products during the same years 1934 and 1935 makes evident that in this branch of farming, of such immense importance for Argentina, State action has taken the form of the institution of an autonomous body, the National Meat Council (*Junta nacional de carnes*) and the Argentine Breeders' Corporation, of more recent establishment.

From the time that the Corporation initiated its activity, the situation in respect of the meat export improved. For cattle, the price rise in 1935, after the Corporation began to function, was 10.34 per cent. per kg. of live weight as compared with 1934, and the number of head of cattle purchased by the meat packers for export increased by 5.97 per cent., while the total live weight of the animals purchased was increased by 2.97 per cent. For sheep, the slaughter of animals intended for export increased in 1935, the first year, as already stated, of the working of the Corporation. Prices showed a 9.01 per cent. rise per head as compared with 1934. In respect of pigmeat, which represents a new departure in Argentine breeding, purchases by the meat packers for export increase from year to year. Up to a fairly recent date, pigmeat was hardly exported at all, being almost entirely consumed within the country. The case is one therefore of the beginnings of a production and export; the prices and slaughtering numbers, none the less, are assuming an increasing importance each year.

With regard to wool, the increase in woollen manufacture in certain countries, especially in the United States, Great Britain and Germany, has been of material benefit to the wool trade of Argentina, in view of the favourable conditions prevailing in Argentina as compared with the other wool exporting countries. Since 1932 there has been a steady increase in the production of wool; the surplus stocks might have occasioned congestion on the market if it had not been for the stabilising effect of two factors: one of these was the flock mortality that occurred in 1934 in the south of the province of Buenos-Ayres, an important wool-producing zone, and the other, the increase in the demand for Argentine wool in the United States and in Germany. The fall in production due to the former cause and the marked diminution in stocks following on the increased demand had together the effect of stabilising the market the average of prices being maintained with little or no alteration. 95 per cent. of the Argentine wools are of the crossbred type; out of this percentage half are the coarser kinds. The average of the prices in pesos per 10 kg. during the last three year has been as follows:

Year	Price paper pesos
1933	6.00
1934	9.26
1935	8.20

For milk products there are no statistics available earlier than 1934, a fact which necessarily limits the scope of any appraisal of the actual progress achieved in this branch of stockbreeding since the initiation of the measures for the protection of agriculture taken by the Government.

Returning to the consideration of crop products, mention may be made of cotton which promises to have an important future in Argentina and seems likely to become a representative export commodity. The protection given by the Government to cotton growing through the medium of the National Cotton Council constituted one of the essential factors in its prosperity. During the last season, 1934-35 sowings took place over 286,147 hectares producing, according to the official statistics 238,285 tons of raw cotton, or 64,038 tons of fibre and 164,187 tons of cotton seed; in the previous season, 1933-34, the figures of the three products were 155,236 tons for raw cotton, and 43,357 and 106,833 respectively for fibre and seed. For production of fibre, Argentina holds the seventh place among the cotton growing countries. The extent to which the Government has protected prices and exports may be seen from the following figures relating to the Argentine exports of cotton products in the years 1934 and 1935.

Products	1934		1935	
	Volume exported (tons)	Value (pesos)	Volume exported (tons)	Value (pesos)
Fibre	27,112	20,417,451	36,329	27,479,435
Seed	316	83,686	16,353	948,909
Seed residues	2,368	138,714	3,312	199,270
Cakes	31,390	2,142,357	41,142	2,778,070
Cake residues	350	22,067	—	—
Oil	1	348	243	146,002
Flock	2	425	15	566
Total	—	22,805,058	—	31,546,262

It is thus seen that the increase in production has been accompanied by a highly satisfactory expansion of exports. The figures given above show that the total value in 1935 of the exports of the products of the cotton growing industry amounts to 31,546,262 pesos or as compared with the figure of 1934 an increase of 8,714,204 pesos, or 38 per cent.

After the export of cereals and of meat, the cotton export is the next largest.

State intervention was also undertaken in the interests of the vine growing and wine making industry with the object of mitigating the crisis from which this branch of agriculture was suffering. The measures taken by the Government for its protection were two in number: the unification of revenue charges and the establishment, by Law No. 12,137, of the Wine Regulating Council (*Junta Reguladora de Vinos*) with the function of making all suitable provision for the regulation of wine making, for improving the quality of wines and of supervising the export. The Council grants loans to vine growers, relieves the market by purchase of surplus stocks and thereby establishes an average price level.

By means of the unification of revenue charges the excessive pressure of such charges on wines has been lightened, with the result that prices have become more advantageous.

These observations on the protection of crop and animal production and on the export of the products may be summarised by means of a table which clearly shows the beneficial effects of this intervention on the part of the State in favour of agriculture. The data refer to these three last years and correspond to the quantities exported and their values. The steady advance of these figures from one year to another affords the most striking proof of the beneficial results achieved by the policy of protection undertaken by the plan of 1934.

Products exported	Quantities exported (tons)			Value of the export (pesos)		
	1933	1934	1935	1933	1934	1935
Stockfarming products						
Live animals .	39,962	61,539	57.653	4,324,471	8,147,856	8,054,796
Meat	561,231	559,997	559,859	182,010,938	200,732,409	223,347,361
Hides and skins	159,325	145,845	163,072	80,774,947	82,029,305	97,975,713
Wool	158,724	111,030	136,461	93,852,243	119,215,493	115,316,186
Dairy products	30,249	30,249	25,391	20,615,380	16,632,504	15,369,771
By-products . .	176,002	176,002	205,349	35,622,572	37,490,621	49,438,522
Products of arable farming						
Cereals and linseed	11,442,252	12,824,410	13.769,346	602,611,788	825,822,658	872,253,354
Flour and meal	468,069	516,673	478 250	21,994,587	29 719,142	27,952,622
Other products .	184,163	247,036	328,977	22,525,326	38,145,118	53,842,858

II. — BRAZIL.

In Brazil coffee occupies at present the first place among the agricultural products, so much so that in fact the welfare of the nation depends on the coffee situation. It is for that reason and in order to counteract the effect of monoculture on the position that of late the tendency has become more pronounced towards a diversification of crops, and the introduction of cotton growing, stock farming and the cultivation of oil yielding plants.

These branches of production may be now discussed in the above order, which is that of their importance, and we shall indicate their present position and the measures for their protection as taken by the State.

Brazil has a large external debt and its export balance forms the only source from which the country can obtain foreign currency for meeting its engagements to the creditors of the Union, of the States and the communes. For this purpose is required an annual balance of 10,000,000 pounds sterling to provide for its credit services and the 5,500,000 pounds gold of the last season has been insufficient to cover the external commitments and the transfers which could not be postponed.

The falling off in the trade receipts of Brazil continues to be the determining factor of the national policy, which is at present based on the principle of commercial reciprocity, the success or the failure of this policy depends not so much on the excellence of the programme to be put into force, as on the effective carrying out at the right moment, on the skill of the negotiators of the trade treaties or conventions which are gradually to replace those denounced in virtue of the Decree of 30 December 1935.

One of the most important reasons for the denunciation of practically all the trade treaties is to be found in the high duties placed by nearly all the States on the importation of coffee, which is the main commodity exported from Brazil. In certain countries, these duties would be prohibitive except for the fact that, as appeared in the period of the worst depression, coffee is, among all products of prime necessity, the one which best resists both fiscal pressure and general shrinkage of consumption. This is clear from the figures

Country	Importation of Brazilian coffee kg in 1935	Import duties per 100 kg		Total import duties paid in milreis	Value f. o. b. coffee milreis	Of the value in respect of the import duties paid
Italy .	26 355 120	Liras	1 600	606 800 282	60 480 825	9 9
Germany .	52 260 420	RM	160	436 813 494	125 225 399	28 6
Spain	4 224 420	Pesetas	215	21 710 264	9 738,285	44 7

The immense importance to Brazil of the duties placed on coffee is due to the place held by the product in relation to the total export figures, as shown below for the last five years

Years	Metric tons		Pounds sterling gold		Value of coffee	Value of other products
	Coffee	Other products	Coffee	Other products		
1931	1,071,052	1,165 052	34,104,000	15,440,000	69 07	30 93
1932	716,114	916,151	26,238 000	10,391,000	71 90	28 10
1933	937,558	983,214	26,168,000	9,022,000	72 79	27 21
1934	848,812	1,335,970	21,541,000	13,699,000	61 13	38 87
1935	919,764	1,841,998	17,374,000	15,638,000	52 55	47 45

It is clearly seen from these figures that the diversification of the national agriculture with a view to export requirements is calculated to promote trade and to give greater stability to the balance of payments. It may be asked whether it is really advisable to encourage the production of other commodities and to embark with resolution on the path of diversification of crops in the interest of the export trade. It can only be said that there is in Brazil a strong current of opinion in this direction.

From the figures presented here certain other conclusions may also be drawn, such as that suggested by the fact that during the period 1931 to 1935 there has been a decline both in the volume of coffee exports and also even more markedly in their total value; whereas this decline is less or non-existent in the other products. A more definite impression of the decline in the Brazilian coffee trade is gained when the comparative summary of the two last four year periods is examined. In that of 1927-28 to 1930-31, the world consumption of coffee was 23,400,000 bags of 60 kg., of which 15,400,000 bags were of Brazilian origin, and 8,000,000 came from other producing countries; in the period 1931-32 to 1934-35 the total consumption fell to 23,000,000 bags and the supply from other countries increased by more than 8,000,000 bags, and consequently the Brazilian contribution was less by more than 1,200,000 bags.

The precarious situation of coffee made itself felt in a twofold direction: the gold price was not sufficient to cover the requirements of the balance of payments while the home price did not cover the costs of production. The following figures show quite clearly the situation of Brazilian coffee in respect of its quoted prices, its initial cost and the overhead costs in comparison with these costs in countries which compete directly with Brazil.

	Selling price at Havre francs	Overhead costs fr per bag	Growers' receipts fr per bag	% of the theoretical profit of the grower
Colombia	175.00	39.50	135.50	77
San Salvador	130.00	53 00	77.00	59
Brazil	120.00	71.70	48.30	40

If there be taken into account the low prices of the Brazilian coffees in comparison with that of the finer coffees of Colombia and of San Salvador, and if it is also noted that these overhead costs mentioned are invariable for all classes of coffee, the great importance of improving the product intended for export will be evident, alike from the standpoint of the grower as from that of the national economy. Even if such improvement is confined to half the total export of coffee from Brazil and if this total is calculated at 15,000,000 bags, Brazil would secure a profit of 185,000,000 dollars in place of the 130,000,000 which is the approximate amount now obtained.

This question of improvement is closely linked not only with that of the encouragement of export but also with that of the productivity of the plantations and with that of the reduction of the total output. As regards the latter question the proposed cutting down of one fourth of the existing coffee trees would be an effective and economical measure. The problem of over-production of coffee and saturation of the market is one which is of peculiar interest for Brazil but it also affects other producing countries, especially since the fall of prices imposed by Brazil during the years of crisis which began in 1928-29, although as already remarked, coffee among the products of first necessity is not one of those most affected by a general shrinkage in consumption. In any case the figures are very large and the present disproportion between the production of Brazilian coffees and the export quotas is such that if the production for 1936-37 is reckoned at 22,500,000 bags and the export at 15,500,000 and if this surplus is added to the quantities carried over of the previous years, it appears that in July 1937 the surplus stocks of Brazilian coffee will amount to 13,200,000 bags.

Another much disputed question for the external trade in Brazilian coffee is that of the intermediaries between the grower and the consumer, the middlemen profits being estimated at 400 per cent. of the initial value of the product. Even if this figure is regarded as exaggerated, the economy which might be effected by a corporative or co-operative organisation of distribution would seem to be very large. Such considerations have led to the idea of founding general stores of coffee in the principal centres of the world market. The scheme is not in itself a new one; it was tried in 1907 and maintained up to the great war by the State of S. Paulo which set up depots of this type at Hamburg, at Havre and at Antwerp, a charge of 5 gold francs per bag being made for management expenses. Since this first attempt was a failure the repetition of such a scheme and expectations of its utility hardly seem justified. It would seem more urgent to combat the losses caused by the present practice of using substitutes. While the trade in coffee has been reckoned at an annual average of 24,000,000 bags, that in substitutes, according to recent German statistics, varies between 18,000,000 and 20,000,000 bags.

There is no dearth in Brazil of organisations which protect the technical, economic and even political interests of coffee. It might almost be said that their numbers have given rise to clashes and conflicts which do not always find a harmonious settlement to the best advantage of all interests concerned.

Requests have been made to the public authorities on the occasion of more than one national conference for the establishment of an official organisation which would unify production and trade in view of the export. Following on the international Conference held at Rio de Janeiro in 1931, the Council of coffee producing States was formed the programme for which was prepared at the meeting of December of the same year by the representatives of these States and of the coffee trading centres.

In February 1933 this Council was replaced by the National Department of Coffee (D. N. C.), a self-governing organisation subordinate to the Ministry of Finance, the powers and functions of which were confirmed by the meeting of July 1935.

The main objects of the D. N. C. are to collect the taxes and other dues on coffee, to establish statistics on the production, consumption and distribution, as well as on the relations existing between these, to destroy by burning the surplus coffee and to purchase a percentage amounting compulsorily to 30 per cent. of the gathered product; to distribute money premiums to establishments for the improvement of the product and to growers in general, to carry on international propaganda and valorisation of the product and to undertake the protection of the trade in coffee, in short to supervise all private activities connected with the growing and the marketing of coffee.

The sources of income of the D. N. C., according to the terms of the Convention of 1935, are as follos:

(1) a tax of 15 milreis (known as the five shilling tax) per bag of coffee and earmarked for the purposes of the loan of 20,000,000 pounds sterling contracted by the State of S. Paulo;

(2) a tax of 15 milreis per bag, reduced from 30 milreis (known as the ten shilling tax) earmarked for the amortisation of the obligations of the D. N. C.;

(3) a tax of 15 milreis per bag established by the coffee-growing States, the proceeds of which are devoted to the carrying out of the operations undertaken by the D. N. C.

These operations include the measures taken for encouraging the improvement of the product, for example, the foundation of establishments (numbering now some 40) for the preparation and improvement of the product; and the premiums granted on fine coffees varying from 3 to 5 milreis for selected coffees, if they are not of inferior class to the standard No. 3 of the New York Exchange.

These functions of the D. N. C. in relation to the improvement of Brazilian coffees were ultimately assigned to the Coffee Technical Department which is subordinate to the Ministry of Agriculture and is financed on the basis of one milreis per contribution assigned to the D. N. C.; up to the present time, however, the National Department of Coffee has not given up its specific activities.

All questions of transport and of placing on the market are dealt with by the D. N. C. The provisions of 1935 have been in part modified and in part ratified for the coffee harvest of 1936-37 taking account of the serious nature of the problem of coffee surpluses. The compulsory quota is maintained of 30 per cent of the production to be sold to the D. N. C at the unchanged price of 5 milreis per bag including the bag.

All *ordinary* coffees presented to the Office are distributed into three quotas: (*a*) D. N C. quotas of 30 per cent.; (*b*) retained quota of 30 per cent., and (*c*) direct quota of 40 per cent. Choice coffees and those competing for the premiums for fine coffees, are divided into two quotas: (*a*) D. N. C. quota of 30 per cent. and (*b*) preferential quota of 70 per cent. No shipment of coffee (retained or direct quota and preferential quota) is authorised until the D. N. C. quota has been delivered to the depots; coffees of the retained quota are sent to the regulating warehouses; and only those of the direct quota and the preferential quota may be consigned direct to their destinations.

In addition to the D. N. C. which functions at Rio de Janeiro, there is the Coffee Institute in S. Paulo, but there is a decided opposition between the two institutions. Such was the case in relation to the premiums to growers of fine coffee and also in the scheme for cutting out the fourth part of the existing coffee trees. In both these cases, the Institute had the support of the S. Paulo growers who were also the first to censure the famous burning of the 36,000,000 bags of coffee in 1931.

Other initiatives and schemes are in process of formation or enquiry which may prove useful for the Brazilian coffee trade and that of the world; such are the foundation of a National Export Institute (opposed by the Federal Council of Foreign Trade in its session of January 1936), that of a National Bank of Coffee, that of an International Coffee Bureau, etc.

In regard to the large scale initiation of multiple cropping now in progress in Brazil, it may be noted that cotton takes the second place in the foreign trade balance.

Ten years ago S. Paulo grew a little cotton only and of poor quality, some millions of kilogrammes of fibre hardly sufficient for its own newly undertaken textile industry. It seemed as though this crop promised little as to industrial utilisation and less as regards export. It was when the coffee crisis began to be felt that attention was turned to cotton which now represents a value of 900,000 contos (1 conto = 1,000 milreis) and is tending to increase. At the present time Brazil occupies the fourth place among the cotton fibre exporting countries after the United States, India and Egypt.

The 1936 crop is estimated at 1,743,000 bales, while the 1934 and 1935 crops yielded 1,011,000 bales and 1,332,000 bales respectively.

For the coming year it is calculated that the export will be nearly equal to the production seeing that the estimates of the demand have noticeably increased during this season. In any case and taking the data at present accessible, the volume of raw cotton exported from Brazil in 1935 was 138,000 tons of an approximate value of 5,200,000 gold pounds. Moreover cotton which in 1935 represented less than 5 per cent. of the total of Brazilian exports during this past year amounted to 16 per cent.

As regards protection of cotton growing, the growers themselves form organisations and are gradually dealing with the problems inherent alike in the production and in the distribution of the product and with those that relate to the better industrial utilisation of the by-products and especially of the oils.

In this connection it is to be anticipated that a decisive importance will attach to the National Cotton Conference when the agenda will include the requirements of the industry, the qualities required of the product on the present markets, the question of large co-operative establishments, the control of the product and the joint campaign against the principal diseases and pests of the cotton plant.

A well considered scheme, embracing the agricultural and the industrial aspects alike, for the large scale cultivation of oleaginous plants would enable Brazil to occupy a place of great importance in this respect as the natural conditions of the country are peculiarly favourable for this production.

The world consumption of vegetable oils (not including olive oil) amounts at present to 18.000.000 tons equivalent to 190,000,000 pounds sterling. The share of Brazil, with 30 different products in this total is 231,392 tons (1935) for a value of 205,000 contos de reis.

The authorities began to pay attention to the problem of vegetable oils in 1931, the year in which was established the Institute of Vegetable Oils which ceased to function two years later. Now the attention of official circles is again being directed to the industrial and commercial utilisation of oil-yielding plants. Special attention is being attached to cotton the by-products of which yielded a total export of 136,000 tons in 1935 and to the Carnauba palm (the oil of which is exported only by Brazil), and the formation of a special service for the study and utilisation of these products is under contemplation at the Ministry of Agriculture.

As regards stock farming in Brazil, some figures may be given relating to stockbreeding in the State of S. Paulo and supplied by the Secretariat of Agriculture, Industry and Commerce.

This State possesses at the present time some 2,700,000 cattle, 3,500,000 pigs 550,000 horses, 500,000 mules, 150,000 sheep and 200,000 goats. The organisation of the meat packing works is one of the largest in all Latin America. In 1934 S. Paulo produced 40,000,000 kg. of frozen meat for a value of 36,000 contos de reis; 12,000,000 kg. of preserved meats for 21,000 contos; 2,700,000 kg. of tinned meats for 4,500 contos, 600,000 kg. of hides for 18,000 contos and 40,000,000 kg. of derivatives for 45,000 contos de reis.

The Second National Stockbreeding Conference which was held in July of 1936 discussed a number of questions relating to the general and special organisation of arable farming and stock farming, and also technical and legislative questions. It succeeded in drawing the attention of the public authorities to this important element in the export trade which seems destined to constitute one of the bases of stability of the Brazilian trade balance.

III. — URUGUAY.

The Eastern Republic of Uruguay is another country of a definitely agricultural economy the prosperity of which is bound up with its arable farming and stockbreeding production and with the exports of its cereals and live stock and live stock products. From the beginning of the world crisis, in spite of the restrictions and sacrifices imposed on themselves by the population in respect of imports, the shrinkage of the exports has been such that the country was unable to pay for all that it was necessary to purchase abroad to meet its most urgent requirements. In consequence further restrictions were placed upon purchases abroad with a resulting fall in the customs receipts and an increase in unemployment as the inevitable outcome of the diminution in the economic activities of the Republic.

Since the prosperity of the stockbreeding and arable farming was recognised to be basic for the life of the nation, special attention to these two branches of agriculture was felt to be imperative.

In view of all these considerations, the competent Ministry submitted to the Government and to the Chamber a series of proposals all tending to the increase of the agricultural wealth of the country.

A brief examination will now be made of these measures which culminate in the law of compulsory land settlement, an initiative of immense importance for the future of the Republic, in view of the fact that the area of Uruguay is some 72,200 square miles and that out of 1,800,000 inhabitants 40 per cent. are resident in the capital. To resolve this question of excessive urbanisation is essential to the establishment of sound economic and social conditions of the Republic.

Taking into account the fact that the basis of the wealth of Uruguay is its stockfarming, cereal growing being the second factor, the measures taken by the Government for the protection of both these branches of agriculture may be reviewed, ending with a survey of the plan of land settlement which is designed to benefit both alike.

All questions relating to the national stockbreeding form undoubtedly the most fundamental problem of the Republic, since stockfarming in its various aspects accounts for the largest proportion of Uruguayan export values. For this reason, one of the first measures adopted by the Government, when in 1933 a programme of national reconstruction was undertaken, was to order an enquiry into and framing of a complete plan of encouragement and assistance to be given to live stock production, the first step towards improvement being that of supplying to the stock farmers the selected breeding animals necessary for improving the quantity and quality of the meat and wool produced by the country. At the same time a well considered and far reaching scheme for control of the stock diseases prevalent in Uruguay which occasion enormous losses to the national economy.

As regards the stimulus given to a production of better quality, the Law No. 8858 of 29 June 1932 granted premiums for production of quality, fixing for the granting of these premiums a period of three months from 15 July to 15 October of each year; taking into consideration however that no very great advantages could result from so limited a period, a further proposal, more liberal in its terms and covering a longer period, was presented to the Chamber. This proposal, which was adopted and is now in force, has proved a remarkable encouragement to meat production and has contributed to bring about the development of stock farming on the large commercial scale. The legal measure prolonging the term for the concession of premiums had the further advantage of supplying work to a larger number of workers thus rendering it possible effectively to combat rural unemployment and to obtain from the land higher returns than those obtained before the adoption of the new scheme.

One of the most important measures taken by the Government for the protection of the national stock breeding consists in a series of regulations for the improvement of wool production. All these legislative provisions are completed by that known as the " Wool Campaign " which is to be carried on over a period of five years, and is designed to effect the improvement of the breeds of sheep for which Uruguay is already renowned, as well as to secure a large increase in production. The chief provisions constituting the "Wool Campaign" are the following:

(*a*) Prohibition of the sale and utilisation of sheep of inferior quality;

(*b*) Facilities given by the State to breeders for the importation of selected breeding animals;

(*c*) Rebates allowed for the transport of wools by rail.

(*d*) Exemption from fiscal dues and customs charges for all material and machinery intended for the wool industry.

As related to the policy of protection of the live stock production and the export of live stock products may be considered also the law of 3 March 1934 which regulates and improves the working of the *Frigorifico Nacional*, an institution which safeguards the interests of producers and consumers alike. Since this organisation became the sole purchaser the price quotations for meat showed perceptible improvement and as a result of the better methods of handling and sale of meat and by-products as carried out by the *Frigorifico* the profits obtained are higher This institution has displayed great activity in respect to the placing of Uruguayan live stock products on the foreign markets, combating with success the policy of tariff walls and quotas and securing new trade channels for these national products

By a decree of 5 April 1933 grazing dues were reduced by 50 per cent. so as to lower the cost of production of meat. This is explained by the fact that the greater proportion of the herds intended for slaughter are moved by road from the stock farming zones to the selling market, owing to the high railway rates and sometimes because no railroad transport is available, and accordingly during their transport the herds graze on any pasture found along the route.

Measures have also been taken for the control of the stock diseases which cause destruction among the herds of certain regions of Uruguay. In this connection mention may be made of the very careful provision which has been made for preventing the spread of mange in sheep.

Uruguay is a deficit country in respect of cereal production, and especially in respect of wheat. This deficit has at times placed the country in difficult situations, as in 1935, when, as a result of the poor wheat harvest of the previous season—due to unfavourable sowing conditions and the locust invasion—the Government was obliged to decree, on 17 April 1933, an import of wheat to meet the requirements of the flour mills. Not only was the immediate problem of the shortage of wheat solved by this Government import, effected through the Bank of the Republic, but it proved to be an economic benefit with lasting effects on the situation of the growers. Subsequently there was passed on 13 December 1934, a law which fixed the minimum price of wheat at 5 Uruguayan pesos per 100 kg. on the market of Montevideo and 4.5 pesos per 100 kg. on the inland markets. The law also contained fresh provisions ensuring an advantage to the grower from the establishment of the fixed minimum price. With this object full control was given in the matter to the Bank of the Republic which obtained wide powers of inspection extending to the examination of the book-keeping of dealers and manufacturers participating in wheat purchases. This law may be said to have constituted an important step in favour of the farmer who, for the future, will not find himself stripped of his profits by speculative transactions tending to lower the value of his commodity.

Of all the measures taken by the Government of the Republic in the course of its campaign of reconstruction of the national economy, that which has assumed the most striking proportions and which holds the most promise for the future of Uruguay, is the Decree Law of May 1933 which declared it to be compulsory to cultivate the land. The purpose of this Decree was not merely to combat the excessive urbanisation already mentioned, but was also that of giving a wider extension to cultivation. As stated in the preamble " this wider extension is not merely an element in developing live stock production but is also a determining factor in its fundamental transformation which, by increasing the volume and diversifying the character of the exportable products, will strengthen the whole economy of the country and render it able to resist effectively the present world depression. "

The clauses of the decree may now be briefly reviewed· The new land to be settled lay within four zones: in the first of these, which included the departments of Montevideo and Canelones, the obligation to cultivate extended to 30 per cent. of each estate in the Department; in the second, consisting of the Departments of Colonia, Soriano and San José, the obligation to cultivate applied to 8 per cent. of the estates of these Departments; in the third zone, Durazno, Rio Negro, Paysandu, Florida, Lavalleja, Flores and Maldonado, the obligation to cultivate applied to 5 per cent. of estates of more than 5000 hectares in area; on the last zone, formed by the Departments of Artigas, Rivera, Salto, Tacuarembo, Cerro Largo, Rocha and Treinta y Tres the obligation applied to 3 per cent. of estates of more than 500 ha.

Exemption from this obligation to cultivate is granted in the case of holdings of land on which the area fit for cultivation is not, in the first and second zones, twice, and in the third and fourth zones three times, the percentage area the cultivation of which is incumbent on the owners; in such cases a third part at least must be cultivated of the percentage indicated with exception of land in the zone which in the judgment of the Department of Agriculture appears to combine exceptional conditions for natural pasturage which would make the breaking up of the land inadvisable.

In addition to the proportion of cultivation established by this law for all land ownership of the country without distinction of locality or area, the decree made it obligatory to plant trees at the rate of three per hectare in the first and second zones and of two per hectare in the third and fourth zones. This obligation was to be fulfilled within a maximum period of five years.

With a view to facilitating continuous dwelling on the new cultivated lands thus formed the Decree law establishes that when the lands exceed 3.000 hectares in area it shall be compulsory for the owner to erect as many dwelling houses as there are fractions of 3,000 hectares on the land thus formed and that these dwellings shall be situated outside the principal area of the land itself. It is also obligatory for the landowner to place in each of these dwellings persons having a family.

As regards financing, it was established by the Decree Law that the Bank of the Republic should make provision, by means of special credits, for the fuller and more prompt application of the terms of the Decree relative to the resources considered necessary for the fulfilment of the commitments.

In view of the benefits to be obtained by such a scheme of settlement the Government has had recourse to the land of which there is so ample a provision in Uruguay. For the production of the 1,000,000 tons of cereals required for export it is necessary to utilise 1,200,000 hectares of land while 800,000 hectares are required to meet the needs of internal consumption, thus making up the 2,000,000 hectares which it is essential to bring under cultivation and for which provision is made by the terms of the Decree Law cited above.

The beneficial results of the application of the land settlement Decree Law are already beginning to be felt: in 1934, one year after the coming into force of the law, linseed growing had increased by 60 per cent.; the harvest indicated a considerable increase on the crop of the previous year and gave assurance of large supplies of the product for export with the resulting advantages for trade and the national economy. In the commercial crops which have been widely grown in the new zones of cultivation, the sowings of oleaginous plants, the yield from which replaces olive oil, have increased from 1,800 to 5,200 hectares which is proof of the interest with which the farming population have responded to the Government schemes. In view of the fact that till then Uruguay was importing nearly all oils required for consumption, it will readily be seen that this increase in production already represents an advantage on the trade balance and will in the future represent a larger one.

As part of the campaign of protection of agriculture attention has been devoted by the Government also to the branch of vine growing and wine making. An example of this policy is to be found in the law of 25 January 1934 which set up the advisory committee known as " Pro Industria Vitivinicola, " the purpose of which was reduction in costs of production and assistance to growers in the sale of the product. This same law provides for the constitution of a fund for protection and development intended to defray the expenses of a station for experimental work in vine growing and wine making, an important centre in view of what may be done for the future development of a cultivation which in becoming a commercial undertaking will undoubtedly take its place as part of the economic wealth of the country.

Subsequently, a decree dated 10 February of the same year was enacted by which the minimum price was fixed for table grapes and also for wines already prepared. This enactment was renewed in 1935 so as to secure the interests of the vine growers and of the wine making industry.

The main outlines have here been traced of the chief forms taken by the policy of protection of agriculture in Uruguay, while no reference has been made to other aspects which may be described as subsidiary as relating to products of less vital importance. It is however indisputable that the scheme of protection initiated in 1933 is in its main lines complete. In fact the work of giving it effect has been so great that it has become necessary to divide the Ministry of Industries which, up to a short time ago, dealt with all aspects of agriculture, into two Ministries: that of stock breeding and agriculture, and that of industry and labour.

E. MARTINEZ.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

BRAUN Dr. Herbert Das Baumwollterminugeschaft Eine Untersuchung der Risikoausschaltung durch Termingeschafte im Handel mit nordamerikanischer Baumwolle unter besonderer Berücksichtigung der deutschen baumwollverarbeitenden Industrie und des Fertigwarenhandels C E Poeschel Verlag, Stuttgart, 1936, p 225.

[In the International cotton trade the importance of futures trading as a special type of stock exchange transactions is well understood In futures transactions, where the dates fixed for purchase and delivery are fairly widely separated, very considerable losses sometimes occur, in consequence of price fluctuations during the interval The high risk involved in futures trading on the cotton market is most readily observed if it is considered that price variations of one cent per lb only of a average United States harvest of 15,000,000 bales may occasion a total risk between purchase and delivery dates of some 100,000,000 dollars

With a view to the elimination of these serious risks so far as possible in the international cotton trade, the hedging system was devised " It is difficult to define hedging, " says Prof John A. Todd, the well known cotton expert, in *The Cotton World*, London 1927, p. 66, " but in effect it is a means of insurance against risk by setting up for each contractual obligation a parallel or collateral contract which will work the other way, so that if the original contract results in a loss the other will produce a profit to set off against the loss "

In the work here reviewed the author examines in detail the various hedging contracts in futures trading, their nature and form, as also the carrying through and winding up of hedging business, alike in the international cotton trade as particularly in the German cotton trade and industry. The purpose of this examination is not to bring out the general economic significance of the futures trading for the study is undertaken rather from the standpoint of private business management. With the isolation of the national markets from the world market, as also in consequence of the fact that foreign currency values are not always available for international futures trading, in many countries the cotton futures market has for the present been deprived of its economic basis. None the less the problem of the structure of the hedging system and of the futures market remains as such a real one, since the present inhibiting factors cannot, supposedly, long continue to be effective, otherwise the whole of international trade in commodities is completely held up.

The book which is compiled for the practice of the cotton market contains numerous tables and well executed graphs. It will be found very useful by all connected with the cotton trade and its frequently highly complicated transactions].

M. T.

Murat Auguste. La propriété agraire en Italie. Lyon, L'Imprimerie de Lyon. 1936. pp. 425.

[This work is not confined, as its title would seem to indicate, to a study of agricultural property in Italy: it deals also with the agricultural policy of the Fascist Government in its fondamental aspects.

The A. begins by considering the geographical conditions of Italy from the physical and human points of view. He proceeds to examine the different kinds of property: State property, property of the Communes, collective property and private property. After this he describes the various types of farming: small occupying ownership, cash tenancy, share tenancy, métayage and wage-earning labour.

In the second part of this work M. Murat sets out the present meaning of the doctrine of the social function of property and the first applications of this doctrine, namely, syndical and corporative organisation (collective labour contracts), the struggle against the system of day labour (share contracts) and the direction given to agricultural production (the « wheat campaign »).

The third part of the work in question is devoted to comprehensive land improvement, it examines successively what it is, the means and methods by which it is carried out and, lastly, the results attained.

The work concludes with a systematic bibliography, containing the indication of the most important publications, grouped according to their contents in three sections: I. General works (general treatises, works relating to Italian economic problems, works relating to comprehensive land improvement, articles in reviews or journals). — II. Statistics, inquiries, monographs and reports (Italian economic problems, comprehensive land improvement). — III. Documents, reviews, journals (Parlamentary documents; laws and decrees, journals and reviews)].

J. **Perthuis** de la Salle. La politique française du contingentement Macon 1935.

[This study contains three parts. In the first the situation of French economy in 1931 is examined. As the author remarks, it is essential to a proper understanding of the quota policy in France to recall the condictions in which it came into existence. These conditions were, on the one hand, the reactions of the foreign trade of France to the world crisis, and, on the other, the effects as felt on the French market of the system of customs agreements to which may mainly be attributed the appearance of those partial and limited prohibitions otherwise known as the quotas and constituting according to the writer a defence reaction on the part of the French market. Subsequently the persistence of the abnormal conditions referred to made it necessary to organise a systematic policy of quotas, a policy which had originated as a temporarily improvised measure, and to substitute for a series of expedients merely, a system which, although understood to be temporary in character, was framed with all the consistency possible.

In the second part an examination is made of the development of this quota system, under two sections corresponding to two separate phases in the quota organisation: *viz.*, the unilateral form of quota-fixing and the contractual method. Each one of these two phases has been in its turn divided in accordance with the two methods of application that have been followed.

In regard to the unilateral quotas, the period of application of which falls exclusively between July 1931 and September 1933, the writer in the first place examines the primitive form of the " global " quota. This form had not only disturbed the markets, upset prices, encouraged speculation and had been an element in the rise of the cost of living, but had also given rise to administrative difficulties, since, in view of the fact that it was impossible for any one customs office to ascertain quickly the imports passed through the other offices, the quantities fixed by the quotas were continually being exceeded. This form rapidly gave place to the relatively improved scheme of mathematical distribution by country. The author reviews this new system by which the quota assigned to each country had been fixed up to the end of 1932 at the average of its imports into France of the five preceding years, and later from 1933 on the basis of the 1932 figure. For 1934 a new base period had been taken constituted by the three previous years, but subject to correction in consideration of the abnormal volume assumed by foreign importations during this three year period.

As however experience revealed many drawbacks in this system (notably the fact that the averages even if calculated exactly could not give more than empirical indications), the author recalls the decision which was the outcome of a communiqué of the Cabinet Council of 1 September 1933 according to which quotas would be for the future arranged against equivalent facilities accorded by the foreign countries to exports of French products to their shores In order, however, to maintain so far as possible the traditional directions of trade, the fourth part of each quota was to continue to be distributed in accordance with the principles as formerly applied

After an account of this new method of quota-fixing, the question is then examined of the distribution among the importers of which there have been two distinct phases as was the case with the method of fixing quotas of import from abroad. Actually the internal working was in the first place ensured by an exclusively national direction and later was passed over to management by the foreign countries concerned

The third part contains an interesting review of the results of the quota fixing policy in which there are examined not only the consequences for the nation (whether as relating to prices, or to unemployment) but also the international effects, *viz*, the reactions abroad, the part played by and the range possible for producers' agreements.]

F A.

SCHOEN A. Le Marché agricole français et les interventions de l'Etat. Paris 1936.

[As indicated by the title, this enquiry deals with the forms taken by State intervention on the French agricultural market as and when the need for such intervention came to be felt and the public authorities became impelled to measures of protection, taxation and regulation. We are concerned herewith a phenomenon well-known at the present day to which the name of planned economy is ordinarily given and which has been defined in an interesting way by Professor Pirou According to this author, planned economy borrows from the doctrine of free economy the conception of private property. The phrase has no significance of a transfer of undertakings or of their management to the State but it retains from socialised economy the idea of plan In consequence, it superimposes on individual and private activities, which are left untouched, a general framework designed by the public authorities, and it is anticipated that in this way private and individual activities will be given a direction by the State, will be canalised by the public authority along lines conforming to the general interest, which apart from this intervention these activities would not have followed.

Before approaching the main subject of his enquiry, M. Schoen examines the general characteristics of the problem of State intervention in economic life. After touching on " mobile " interventions, the author deals with the forms of intervention which he divides into schemes of external protection (customs duties, quota-fixing, etc.) and forms of intervention on the national markets (control of prices, of supply and of demand).

A detailed examination follows of the various measures taken by the French Government in view of improving conditions of the market for agricultural products. After giving an account of the interventions of a general character—improvement of conditions of production, extension of trade channels and assistance to the financial resources of farmers—the author treats more fully of the State interventions in particular on the markets of wheat, wine, sugar beet, alcohol, meat, milk, resin products, chicory for coffee, all being handled in relation to the structure of the national and world market of these products.

This central portion of the enquiry concludes with the question of premiums granted for the production of milk, hemp, olives and silk.

The third part is devoted to the examination of the various arguments for or against State intervention.

A bibliographical table on the question of State intervention provides the means of following up the study of this important problem.

F. A.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Bibliography.

CULVER, D. C. Methodology of social science research: a bibliography. Berkeley, University of California press, 1936. X, 159 p. (California. University Bureau of public administration. Publications)

GUIDA BIBLIOGRAFICA 4ª ed. Milano, Gruppo d'azione per le scuole del popolo, 1936. 638 p. (Biblioteca dei maestri italiani)

ZAGREB. TRGOVINSKO-INDUSTRIJSKA KOMORA. Bibliografija jugoslovenske privredne književnosti za godinu.... Zagreb, Stamparija "Grafika". s. a. [Bibliography of Yugoslav economic literature].

General.

COMMISSION INTERNATIONALE D'AGRICULTURE. Annales. XVI. Octobre 1936. Paris, 1936, 295 p.

INDICATEUR DE LA PRODUCTION FRANÇAISE 1936. 19ème année de publication. Paris, Association nationale d'éxpansion économique, 1936. 548 p.

DAKLÁDAL, JAN. O vztazích československého zemědělství k našim láznim. Praha, 1936. 111 p. (Časové otázky zemědělské vydává Československá akademie zemědělská, Čis. 53).
Title also in German: Uber die Beziehungen der tchechoslowakischen Landwirtschaft zu unseren Bädern].

Economic History.

SIEGEL, S. Ceny w Warszawie w latach 1701-1815. Lwów, Kasa im. J. Mianowskiego, 1936. VI, 277 p. (Badania z dziejów społecznych i gospodarczych pod redakcją. Fr. Bujaka, nº 25).
[Title also in French: Les prix à Varsovie de 1701-1815].

Sociology.

ABDUR RAHIM KHAN. An economic survey of Bhambu Sandila, a village in the Muzaffargarh district of the Punjab. [Lahore, " C. & M. Gazette "], 1936. XX, 205 p. (Pendjab. Board of economic inquiry. Publication No. 45. Punjab village surveys, 8).

BRAYNE, F. L. and SHIV DYAL. An economic survey of Bhadas, a village in the Gurgaon district of the Punjab. [Lahore, " C. & M. Gazette "], 1936. xxii, 236 p. (Pendjab. Board of economic inquiry. Publication No. 43. Punjab village surveys, 7).

SONDEL, Jan. Działacz społeczny w środowisku wiejskiem jako oświatowiec, wychowawca, organizator, psycholog, socjolog i ekonomista Wydanie drugie. Kraków, 1935. 256 p. (Bibljoteka Instytutu administracyjno-gospodarczego; Kraków).

[Director of social activities in agricultural circles as instructor, teacher, organizer, psychologist, sociologist and economist]

Economics.

FENSCH, H. L.; K. PADBERG; H. WEITZ Zahlen und Bilder aus dem deutschen Landbau. Berlin, Reichsnährstand Verlags-Ges. m. b. H , 1936. 116 p. (Arbeiten des Reichsnährstandes, Bd. 12).

HIMADEH, SA'ID B. Economic organization of Syria Beirut, American press, 1936. 466 p. (Beirut. American university. Faculty of arts and sciences. Social science series, No. 10).

NEMO. Trgovsko-gospodarski leksikon. Ljubljana, " Umetniška propaganda, " 1935. [Economic and commercial encyclopædia].

v. 1: A-K.

Legislation.

SALIS, L. La proprietà superficiaria. Padova, " Cedam, " 1936. XI, 352 p

Statistics

DEUTSCHES REICH. Statistisches Reichsamt Gartenbauerhebung, 1933-34. Berlin, Verlag für Sozialpolitik, Wirtschaft und Statistik, 1936 126 p. (Statistik des Deutschen Reichs, Bd. 468).

Rural Economics

CHMIELECKI, W. Organizowanie drobnych gospodarstw wiejskich Opracowali: Wojciech Chmielecki, Edward Baird, Bolesław Składziński. Warszawa, 1934 III, [351] p. (Związek izb i organizacyj rolniczych R. P. Centralny komitet do spraw organizacji przodowniczych gospodarstw mniejszych).

[The organization of small-scale farms].

RICCHIONI, V. Aspetti economici di aziende latifondistiche di Terra di Bari. Bari, G. Laterza & figli, 1936. 146 p. (Bari (Prov.). Consiglio provinciale dell'economia corporativa. Sezione agricola e forestale. Collana di studi e monografie, n. 2).

RIVERA, V. Prospettive agricole dell'Impero etiopico. Roma, G. Bardi, 1936. 217 p.

Co-operation

CO-OPERATIVE UNION, LTD. Sixty-Eighth Annual co-operative congress held in the City Hall, Newcastle upon-Tyne, June 1st, 2nd and 3rd, 1936. Manchester, 1936 775 p.

Credit

FRIČ, Jan Lesní úvěr Praha, 1936. 55 p. (Časové otázky zemědělské vydává Československá akademie zemědělská, čis. 58).
[Title also in German: Die Waldbeleihung]

Various

FEDERZONI, L. « A. O. » Il « posto al sole ». Nuova edizione. Bologna, N. Zanichelli, 1936, XI, 271 p.

LACCETTI, B. Le nostre colonie. Napoli, [Tip. Ciolfi], 1936, 308 p

Periodicals (1), (2), (3).

AGRICULTURE Revue mensuelle scientifique, technique, pratique. v. 4, 1936. Téhéran. 18 rials int.; 8 shillings étr (Départment de l'agriculture).

ARGENTINA. Junta nacional del algodón [*Publicación*] nº 1, 1935 irr Buenos Aires. (Ministero de agricultura).

BALGARSKI tioutioun Le tabac bulgare. Der bulgarische Tabak. v. 1, 1936. mens. Sofia. (Saiouz na tioutiounotargovtsite v Balgariia. Union des commerçants de tabac en Bulgarie. Verband der Tabakhändler in Bulgarien) [Text in Bulgarian, contents in Bulgarian and French only]

BETTER MARKETING. v. 1, 1936. irr. Washington, D. C. (Division of marketing and marketing agreements. Agricultural adjustment administration).

---

(1) Previous list September 1936. To be continued March 1937.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); nº. (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks), v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

BULLETIN de la Banque agricole et coopérative de Bulgarie. nº 7-8, 1935. mens. Sofia. [Numbers 1 to 6, 1935, Bulgarian edition only, under the title "Izvestiia na Balgarskata zemedelska i kooperativna banka"]

BULLETIN fiduciaire d'Indochine. nº 1, 1934. trim Saïgon. 3 $. Société fiduciaire d'Indochine.

ČESKOSLOVENSKO. Zemědělský ústav učetnicko-spravovedny Républiky Československé. *Zprávy.* nº 15, 1931 irr Praha [Institute of farm accountancy and rural economy of Czechoslovakia. *Reports*] [Series of extracts from various publications]

DANZIG-POLEN-KORRIDOR und Grenzgebiete Eine Bibliographie mit besonderer Berücksichtigung von Politik und Wirtschaft. v. 4, 1935. irr Danzig. 60 DG. (Landwirtschaftliches Institut der technischen Hochschule Abt. Wirtschaftslehre).

DANZIGER statistische Mitteilungen v 5, 1925 irr Danzig (Statistisches Landesamt).

FEUILLES d'informations oléicoles internationales v 1, 1936, mens. Rome. L. 30. (Fédération internationale d'oléiculture).

INTERNATIONAL labour office. *Legislative series.* Brochure edition v. 16, 1935. mens. Genève 40s. 0d ou $ 10 00 Bound edition 75s 0d or $ 18 00].

IZVESTIIA na Direktsiiata za zakoupouvane i iznost na zarneni khrani. Bulletin de la Direction pour l'achat et l'exportation des céréales. v. 2, 1936. bimens. Sofia [Text in Bulgarian]

KNIJOVEN pregled. Mesetchno bibliografsko spisanie v 1, 1936. mens. sauf juillet et août Sofia Leva 50 int Leva 100 étr Book review Monthly bibliographical review]

KOOPERATIVNO dvijenie. v. 1, 1936 mens Sofia. Leva 80 (Natsionalniia komitet na balgarskata kooperatsiia) Cooperative movement (National committee of Bulgarian co-operation)]

LAND policy circular. v. 1, 1935, mens Washington, D C. (Resettlement administration). [Up to v. 1, supplement nº 1, June 1935, « Land policy review »]. [Mimeographed].

LNÁRSKY věstnik. Lanarský vestnik. Flachsanzeiger. Pro ČSR. v. 3, 1936. mens. Praha. Ustredni lnářský svaz [Containing occasionally articles in German also]

MEMELGEBIET und baltische Staaten. Eine Bibliographie mit besonderer Berücksichtigung von Politik und Wirtschaft. v. 1, 1936, irr. Danzig. 15, DG p. f. (Landwirtschaftliches Institut der technischen Hochschule. Abt. Wirtschaftslehre).

NEUER ORIENT. The new orient. Le nouvel orient. v 10, 1936. 12 f. p. a. Berlin. [Articles in various languages].

NEW ZEALAND dairy exporter and farm home journal. v. 10, 1935. mens. Wellington. (N. Z. Dairy produce exporter news-paper Co., Ltd.).

NORTHERN RHODESIA Government gazette. v. 26, 1936. irr. Lusaka. 12*s*. int.; 13*s*. 6*d* étr.

PAGESIA. v. 3, 1934. hebd. Barcelona. 5 ptes. int.; 12,50 ptes. étr.

QUARTERLY bulletin of Chinese bibliography. (English edition). v. 1, 1934. Peiping. $ 3 int.; U. S. $ 1,50 étr. (The Chinese national committee on intellectual co-operation, Shanghai).

REVISTA de economia e estatística. v. 1, 1936. Rio de Janeiro. (Directoria de estatistica da produção Ministério da agricultura). [Replaces since July 1936, « Mensario de estatistica de producção »]

REVUE marocaine des fruits & primeurs de l'Afrique du Nord. v. 6, 1936. mens. Casablanca. 30 fr. int ; 47 fr. étr

REVUE d'Oka. Agronomie. Médecine vétérinaire. v. 9, 1935. mens. La Trappe, P. Q. 50 sous. [Up to April 1936 « Revue de l'Institut agricole d'Oka et de l'école de médecine vétérinaire de la province de Québec »].

STOPANSTVO. v. 1, 1935. mens. Sofia. Leva 150 (Sdroujenie na sloujitelite pri Ministerstvoto na narodnoto stopanstvo) [Economy (Association of functionaries of the Ministry of national economy]

U. S. A. Resettlement administration. Land utilization division. Land-use planning section *Land-use planning publication*. n° 6, 1936. irr. Washington, D. C.

VÉRITAS. Publicación mensual dedicada a la banca, industria, producción y comercio argentinos v. 6, 1936. Buenos Aires

ŻYCIE rolnicze. v 1, 1936. hebd. Warsawa. *Zl* 24 (Związek izb i organizacyj rolniczych Rzeczypospolitej Polskiej) [Agricultural world (Union of the agricultural chambers and organisations of Poland]

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

AGRICULTURAL STATISTICS

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

WHEAT

World wheat exports in May, which is the latest month for which figures are available, were appreciably heavier than those of April, which is usually a month of limited activity in wheat, but they were still, if only slightly, below the level of those of May 1935. Total shipments for the month did not show the substantial increase in world demand which was expected to occur in the last quarter of the year. Moreover, the first returns of trade movements in June do not appear to bear out the expectation. The good prospects of the coming harvest in North America and the countries of the Danube which prevailed in May and June suggested that there might be a considerable increase in the exportable supplies for 1936-37 and this, together with the weakening tendency in prices of the same period, was not likely to give rise to a brisker demand from the importing countries. The opposite tendency which was to be observed on international markets during July will bring about a recovery in demand but the trade movement of a single month cannot substantially affect the results of the whole season. There is thus reason to believe, as we have stated in recent issues of the *Crop Report*, that total exports will fall short of the total of 540 million bushels which was expected at the beginning of the year and which was kept unchanged in March and that they will barely reach the figure of 514 millions actually recorded last season.

Imports into the United Kingdom and Ireland and those of Continental countries were only slightly below the level of last year. In all probability, the gap that still exists between the imports of these two groups and those of last year will be completely covered and, if this occurs, they will coincide with our forecast.

The decline in world wheat exports in 1935-36 is therefore to be attributed entirely to the reduced demand of the non-European countries, notwithstanding the fact that there have been additional purchases by the United States which in the first ten months of this season imported nearly 30 million bushels as compared with only 4 million in 1934-35.

World net exports of wheat (including flour in terms of wheat)

(Million bushels).

Months	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August	39	49	45	41	66	77	71
September	50	43	51	48	78	74	57
October	51	50	46	62	74	84	60
November	51	43	41	54	67	77	51
December	34	38	51	60	64	59	50
January	34	43	48	62	62	54	48
February	40	41	44	64	73	70	45
March	45	49	50	64	74	67	50
April	30	42	35	40	70	62	42
May.	45	47	44	52	67	81	50
June	...	32	45	42	59	67	51
July	...	35	46	44	45	52	53
Total August-May . . .	*425*	*445*	*455*	*547*	*695*	*705*	*524*
Total year . . .	1) *540*	*512*	*546*	*633*	*799*	*824*	*628*

1) Estimate of October 1935 and March 1936, probably too high.

Net imports of wheat into Europe (including flour in terms of wheat).

(Million bushels)

Months	Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	11	27	18	14	32
September	15	13	28	20	16	36
October	21	15	36	18	13	31
November	21	14	35	17	12	29
December	20	11	31	20	12	32
January	15	10	25	12	10	22
February	14	8	22	16	10	26
March	20	8	28	20	11	31
April	18	9	27	17	10	27
May	20	11	31	22	10	32
June	...	...	...	18	10	28
July	...	...	...	19	12	31
Total August-May	*180*	2) *110*	*290*	*180*	3) *118*	*298*
Total year . . .	1) *220*	1) *135*	1) *355*	*217*	*140*	*357*

1) October 1935 and March 1936 estimate. — 2) After deduction of net exports of 6 million bushels from Latvia, Portugal and Sweden. — 3) After deduction of net exportes of 14 million bushels from France, Latvia and Sweden.

The information received by the Institute up to the middle of July gives the following outline of prospects.

In Europe, the month of June began with cold conditions and, in some places, night frosts, but in the latter part weather became warmer and clearer with rainy intervals in nearly all central and northern districts; in Mediterranean areas, however, it continued wet, stormy and close and the crops there were in need of sunny and less oppressive weather In Spain, Portugal, Italy, Greece and the South of France, the crops continued to deteriorate in condition owing to the adverse conditions and there were many reports of damage resulting from lodging, stem-rot, rust, scorching, hail and weeds.

The crops in most northern and central countries, on the other hand, were assisted by the conditions of June and an appreciable improvement occurred in crop condition which, at the beginning of June, was as good as it was last year, and in several countries even appreciably better

Temperatures were higher in all parts in the first half of July but in the south conditions were still close and stormy and generally unfavourable for maturation, harvesting and bringing in of the crops. The weather conditions experienced after the middle of June varied from region to region but the improvements which occurred in some countries do not appear to have been sufficient to offset the deterioration recorded in others. The general outlook in the middle of July indicated a rather smaller crop than that expected a month earlier. Our preliminary estimate of the 1936 crop was increased last month to 1,525 million bushels for Europe, excluding the U. S. S. R., consisting of 1,080 millions in the group of importing countries and 445 millions in the exporting group (the four Danube countries, Poland and Lithuania). This estimate was based on the area cultivated this year, on the condition of the crops in the middle of June and on the assumption that the course of the year would be neither too favourable nor too adverse up to the harvesting period. The unfavourable conditions recorded between mid-June and mid-July, however, have resulted in a decline in crop prospects in several important countries and it would, therefore, seem reasonable to reduce this preliminary estimate by about 30 million bushels in order to allow for the change that has since occurred in the crop situation in the importing countries. The June figure of 1,080 million bushels is accordingly now reduced to 1,050 millions. The figure of 445 million bushels for the exporting countries is, however, retained without change for, though there were reports of storms and rains resulting in some slight damage in the Danube countries, there was a slight compensatory betterment in prospects in Poland and Lithuania. The total figure for Europe is reduced from 1,525 million to 1,495 million bushels. Even at this figure, however, the crop would be larger than all those harvested before 1933.

The weather conditions experienced in June in the U. S. R. S. were fairly favourable as rainfall was plentiful, particularly in the south-west. A considerable wheat area in the south-east, however, has suffered from a prolonged drought and great heat which have seriously reduced the promise of a plentiful crop.

Cereal production.

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
				WHEAT				
Germany	108,248	102,894	102,128	180,410	171,487	170,209	105.2	106,0
Bulgaria w)	33,466	26,379	31,574	55,775	43,965	52,622	126,9	106.0
Spain	72,896	94,792	94,850	121,490	157,984	158,080	76.9	76.9
Finland	2,813	2,540	1,105	4,688	4,233	1,842	110.7	254.5
Scotland	2,016	2,666	1,649	3,360	4,443	2,748	75.6	122.3
Greece	14,246	15,841	11,048	23,743	26,401	18,414	89.9	128.9
Hungary	52,951	44,369	45,904	88,250	73,947	76,506	119.3	115.4
Netherlands	9,573	9,992	7,082	15,954	16,653	11,802	95.8	135.2
Romania	72,753	57,864	62,069	121,252	96,438	103,446	125.7	117.2
Totals	*368,962*	*357,337*	*357,409*	*614,922*	*595,551*	*595,669*	*103.3*	*103.2*
Canada (w)	1) 6,800	7,561	8,678	1) 11,400	12,601	14,463	90.4	78.8
Canada (s)	1) 201,300	158,843	200,458	1) 335,500	264,738	334,097	126.7	100.4
United States (w)	307,251	278,522	438,996	512,085	464,203	731,661	110.3	87.3
United States (s)	75,788	95,545		126,314	159,241		79.3	
Totals	*591,139*	*540,471*	*648,132*	*985,299*	*900,783*	*1,080,221*	*109.4*	*91.2*
India 2)	210,426	220,886	214,435	350,709	368,144	357,392	95.3	98.1
Japan	27,730	29,233	22,080	46,216	48,721	36,799	94.9	125.6
Totals	*238,156*	*250,119*	*236,515*	*396,925*	*416,865*	*394,191*	*95.2*	*100.7*
Egypt	27,216	25,933	25,877	45,359	43,221	43,128	104.9	105.2
French Morocco	9,319	12,022	17,705	15,531	20,036	29,509	77.5	52.6
Tunisia	4,630	9,921	7,774	7,716	16,534	12,956	46.7	59.6
Totals	*41,165*	*47,876*	*51,356*	*68,606*	*79,791*	*85,593*	*86.0*	*80.2*
GRAND TOTALS	**1,239,422**	**1,195,803**	**1,293,412**	**2,065,752**	**1,992,990**	**2,155,674**	**103.6**	**95.8**
				RYE				
Germany	186,207	164,866	172,215	332,513	294,404	307,527	112.9	108.1
Bulgaria w)	4,854	3,682	5,208	8,668	6,576	9,300	131.8	93.2
Spain	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81.5
Finland	7,774	7,706	7,710	13,881	13,760	13,768	100.9	100.8
Greece	1,418	1,294	1,231	2,531	2,312	2,198	109.5	115.2
Hungary	17.507	14,912	15,950	31,263	26,629	28,483	117.4	109.8
Netherlands	11,052	10,323	8,771	19,735	18,434	15,662	107.1	126.0
Romania	8,819	7,126	7,686	15,747	12,724	13,725	123.8	114.7
Totals	*247,741*	*220,664*	*231,183*	*442,391*	*394,045*	*412,827*	*112.3*	*107,2*
Canada (w)	1) 3,200	4,365	3,801	1) 5,700	7,795	6,787	70.7	81.2
Canada (s)	1) 1,000	1,014	1,205	1) 1,700	1,811	2,152	87.0	73.2
United States	14,773	33,000	17,512	26,380	58,928	31,272	44.8	84.4
Totals	*18.973*	*38,379*	*22,518*	*33,780*	*68,534*	*40,211*	*48.8*	*83,2*
GRAND TOTALS	**266,714**	**259,043**	**253,701**	**476,171**	**462,579**	**453,038**	**102.9**	**105.0**

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
				BARLEY				
Germany	80,099	74,682	69,512	166,876	155,591	144,820	107.3	115.2
Bulgaria w)	5,905	5,204	5,906	12,302	10,842	12,304	113.5	100 0
Spain	37,690	46,589	53,442	78,523	97,062	111.340	80.9	70.5
Finland	4,187	3,658	3,953	8,722	7,621	8,235	114.4	105.9
Greece	4,449	4,248	4,165	9,269	8,851	8,678	104.7	106.8
Hungary	13,545	12,680	14,029	28,220	26,418	29,227	106 8	96.6
Netherlands	2,540	3,387	1,598	5,291	7,057	3,329	75,0	158.9
Romania	35,274	20,367	35,311	73,489	42,431	73,567	173.2	99.9
Totals	*183,699*	*170,815*	*187,916*	*382,692*	*355,873*	*391,500*	*107.5*	*97.7*
Canada	1) 42,700	40,308	39,400	1) 88,900	83,975	82,083	106 1	108.6
United States	79,136	135,468	101,794	164,866	282,226	212,071	58.4	77.7
Totals	*121,836*	*175,776*	*141,194*	*253,766*	*366,201*	*294,154*	*69.4*	*86.3*
Japan	33,514	37,732	35,906	69 822	78,610	74,805	88,8	93,3
Egypt	5,151	5,021	4,851	10.731	10,461	10,107	102 6	106 2
French Morocco	28,872	17,188	25,334	60,151	35 809	52,781	168 0	114 0
Tunisia	1,653	8,819	4,189	3,445	18,372	8.727	18 7	39.5
Totals	*35,676*	*31,028*	*34,374*	*74.327*	*64,642*	*71,615*	*115.0*	*103.8*
GRAND TOTALS	**374,725**	**415,351**	**399,390**	**780,607**	**865,326**	**832,074**	**90.2**	**93.8**
				OATS				
Germany	125,854	118,734	136,318	393,289	371,043	425,991	106.0	92.3
Bulgaria	2,515	2,041	2,284	7,859	6,379	7,137	123.2	110.1
Spain	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.8
Finland	14,449	13,424	14,893	45,153	41,951	46,540	107.6	97 0
Greece	2,632	2,220	2,179	8,226	6,938	6,810	118.6	120.8
Hungary	5,485	4,893	6,120	17,141	15,291	19,126	112.1	89.6
Netherlands	6,303	6,202	6,346	19,697	19,380	19,830	101.6	99.3
Romania	17,637	13,089	16,928	55,115	40.904	52,899	134.7	104 2
Totals	*187,058*	*173,201*	*200.522*	*584,550*	*541,255*	*626,628*	*108.0*	*93.3*
Canada	1) 135,200	134,078	120,468	1) 422,400	418,995	376,462	100.8	112.2
United States	257,734	382,934	315,212	805,420	1,196,668	985,039	67.3	81.8
Totals	*392,934*	*517,012*	*435,680*	*1,227,820*	*1,615,663*	*1,361,501*	*76.0*	*90.2*
French Morocco	474	340	580	1,481	1,062	1,811	139.4	81.8
GRAND TOTALS	**580,466**	**690,553**	**636,782**	**1,813,851**	**2,157,980**	**1,989,940**	**84.1**	**91.1**

---

w) Winter crop. — *s)* Spring crop — *1)* Conjectural estimate based on crop condition on 1 July and long-time average yield. See also Crop Notes, p. 470. — *2)* Second estimate of production.

In North America the frequent but light rains of June were generally insufficient for the spring crops. The second half of the month was dry and hot and the crops over wide areas showed serious evidence of deterioration, particularly in the United States. The conditions, however, were favourable for the ripening of the winter wheat crops. The situation on 1 July indicated an increase in the two North American countries of 85 million bushels on the low crop of 1935. This rather unsatisfactory outlook declined still further in the first half of July as rainfall was entirely lacking over the whole spring wheat area of both Canada and the United States while high temperatures aggravated the effects of the drought. Fairly general rains fell towards 15 July but they were too late to save the crops in the areas most affected by the drought. An appreciable reduction is therefore to be expected in the North American crop estimates. For the fourth year in succession the United States will have a crop inadequate in quantity and quality to cover internal requirements completely. Much of the Canadian crop may still benefit from late rains but it is improbable that the crop will be larger than last year's.

The total production of Asia excluding China appears to be less satisfactory this year. The decrease recorded in India has been known for some months Japan expects a mediocre crop owing to the adverse conditions of the year. Syria and Palestine also anticipate lower than average harvests as the crops, previously compromised by the May-June drought, were unable to recover after the late rains Turkey received better distributed rainfall and the crop appears to be plentiful. In China, the crop is expected to be much larger than the reduced outturn of last year

Wheat production in the three countries of French North Africa is, on the whole, distinctly poor, Algeria only reporting a mediocre crop The first estimate of production in Morocco and Tunisia shows a total of hardly 23 million bushels as compared with 37 millions last year and an average of 42 millions in the years 1930 to 1934. Production in Egypt, however, is fairly good and slightly above both last year's and the average crop.

To sum up, the crop prospects of the Northern Hemisphere, with the exception of Europe and the U S. R. S., where the outturn appears to be about average, suggest that 1936 will be a year of low crops

Sowings in Argentina were impeded by excessive rains and those in Australia by drought. The situation in the latter country recovered after the rains of May and June and sowings were completed on an area about 5 per cent larger than last year's. The wet weather caused some delay in sowings in Argentina, particularly in the north where the delay endangers crop prospects, but in central and southern parts, which are of greater importance as wheat areas, there is some hope of making up the leeway.

G. CAPONE.

CEREALS

Germany· The first decade of June was cool and rainy. In some areas, the south in particular, the fields were reduced to a muddy condition and considerable damage resulted. The weather improved only in the second decade of the month when it became warm everywhere and favourable for the growth of cereals.

According to the most recent estimate, the area under meslin this year is about 1,270.000 acres against 1,288,000 in 1935 and 915,000 on the average of the five years ending 1934; percentages: 98.6 and 138.9. The corresponding production is estimated at about 22,457,000 centals (38,719,000 bushels) against 20,840,000 (35,931,000) and 14,155,000 (24,405,000); percentages 107.8 and 158.7.

The area under spelt this year is about 171,600 acres against 179,800 in 1935 and 279,000 on the average of the five years ending 1934; percentages, 95.4 and 61.5. Production is estimated at 2,539,000 centals against 2,707,000 in 1935 and 3,221,000 on the average of the five years ending 1934; percentages: 93.8 and 78.8. The condition of the crop of 1 July was 2.4, as at 1 June, compared with 2.3 on 1 July 1935.

Austria: Heavy rains fell in all parts early in June and floods occurred in some localities. Temperatures declined considerably everywhere and there were snowfalls on mountains. Fine weather set in the middle of the month. Stormy conditions returned at the end of the month.

The winter cereal crops looked well but it is feared that the yields will not be as good as a superficial examination of crop condition might indicate owing to lodging and blight in wet areas. The yields of winter rye are expected to be average. The spring cereals grew well but weeds are reported to be present.

Belgium. June opened with a sudden fall in temperature and with night frosts. The first half of the month was damp and cold but was followed by a period of warm weather which brought about storms, sometimes of a violent character. The rye crop suffered from cold and wheat was seriously affected by rust. The yields of cereals will be affected.

According to the first estimate, the area cultivated to spelt this year is about 38,700 acres against 38,660 in 1935 and 35,800 on the average of the five years ending 1934; percentages, 100.1 and 108.1. The corresponding figures for meslin are. 7,600, 7,500 and 8,200 acres; percentages, 101.1 and 93.3.

Bulgaria· The good rains of the early part of June, though accompanied by hail and a fall in temperature, were of good effect, particularly on the winter cereals. The fine weather of the last three weeks hastened maturation and enabled a start to be made with the harvest but the latter was hindered at the beginning of July by a resumption of the rains.

According to the most recent estimate, the area under spelt this year is about 33,100 acres against 26,200 in 1935 and 27,600 on the average of the five years ending 1934; percentages, 126.6 and 119.8.

The area under meslin this year is about 179,400 acres against 182,800 in 1935 and 239,400 on the average of the five years ending 1934; percentages 98.2 and 74.9.

Spain: The condition of the winter cereals did not improve in June and the mediocre outlook of preceding months was confirmed. The grain was disappointing and weeds had spread considerably. Where the situation is better, owing either to the better condition of the soil or to the frequent rains, there was appreciable damage to the quality resulting from the recent rains. Blight was reported.

Estonia: The weather conditions of June were favourable for the crops on the whole but there were complaints of drought in some areas.

Irish Free State: The early part of June was dry but harsh and cold with night frosts. The second half of the month was warm to sultriness with occasional thunder.

The second half was favourable to growth and the crops made good progress. Wheat had eared out at the close of the month.

The wheat crop will probably be slightly larger this year. Oats and barley will probably show little change of any significance.

Finland: Rains during May were adequate. June was a warm month and there were occasional complaints of drought.

France: The period between 10 June and 10 July was marked by an appreciable rise in temperature and by fairly plentiful rainfall which begun with violent showers and, at the beginning of the second week of June, by heavier rains, particularly in the south of the Loire valley and in the south-west. At the end of the first week of July weather turned fine in some areas but continued wet in many districts.

The first rains were generally favourable for the grain crops, particularly for those sown in the spring and for oats and barley, in the north, east, the Paris Basin and in some parts of the west where the crops had suffered from drought. Later, rainfall was excessive for the wheat crops, especially in the south-west but also in parts of the Paris Basin Flowering was uneven There were reports of lodging, stem rot, rust in most parts, hail damage and general scorching in the south-west and a further growth of weeds.

The wheat crop prospects are still mediocre in the south-west where harvesting has begun and where the grain appears to be light Elsewhere prospects, though uneven, were appreciably better, particularly in the Paris Basin and the north, where, however, yields are in no instance expected to exceed the average. On the whole, the crop situation has undergone no substantial changes since 10 June, or even since 1 May, except for a slight tendency to worsen.

The Minister of Agriculture, in a speech to the Chamber of Deputies at the beginning of July, spoke of a probable outturn of 159 million centals (265 million bushels). This estimate was considered too optimistic in commercial quarters where a crop of 132 million centals (220 million bushels), that is 11 million centals (18 million bushels) less than the estimate of the previous month, was expected. The figure of 159 million centals appears to be an outside figure which can hardly be reached to judge from the recent information on the crop situation which seems rather to suggest a crop a little under 154 million centals (257 million bushels).

The prospects of the oat and barley crops improved after 10 June and the situation on 10 July promised average crops.

Great Britain and Northern Ireland During the first part of June the weather generally throughout England and Wales was dry with cold winds and temperature was below normal for the time of year. A spell of unsettled weather followed, with a considerable rise in temperature, and violent thunderstorms and heavy rain were experienced in most parts of the country. In some districts severe falls of hail caused damage to crops The rainfall during the month was above normal, and, while the amount of sunshine varied, it was on the whole below average.

In Scotland the exceptionally dry conditions of May continued throughout June in most districts. On the last day of the month, however, thunder showers were general. Temperatures were comparatively low during the first half of June but the latter half was sunny and warm.

Crops made little progress during the first part of June. With the subsequent rain and warmer weather growth in England and Wales was very rapid and the appearance of the crops at the end of the month was generally distinctly more promising than at the end of May. In Scotland, cereals suffered from the lack of moisture and on several farms there was evidence of crops maturing early.

Both the autumn and spring sown wheat crops in England and Wales were generally looking well and had regained colour; in most areas it was anticipated that the yield would be below average. Favourable reports on the condition of barley were received from most districts, and the crop is expected to be on the whole about average. The condition of the oat crop in some districts was considered to be better than that of wheat and barley but generally short in the straw; in most districts the yield is expected to be slightly above average.

In Scotland all three cereal crops were below the average and production is not expected to reach the level of last year. The outturn of wheat, according to a preliminary estimate, will be about 2,020,000 centals (3,360,000 bushels) as compared with 2,666,000 centals (4,443,000 bushels) in 1935 and an average of 1,649,000 bushels (2,748,000 bushels) in the five years 1930 to 1934

Greece According to the most recent estimate, production of meslin this year is about 996,000 centals (1,718,000 bushels) against 673,000 (1,160,000) in 1935 and 714,000 (1,231,000) on the average of the five years ending 1934, percentages, 148.1 and 139.6.

Hungary During the two weeks ending 23 June weather in most places was hot with little rainfall The production of cereals is good in quantity and quality (see Tables)

Italy The cool weather of the first half of June was favourable for the ripening of the wheat crops. There were heavy hailstorms in some areas During the second half of the month, temperatures rose considerably Harvesting on the plains, owing to the fine weather, was nearly finished by the end of the month and good progress was being made on the hills. The threshing of other winter cereals was proceeding with yields varying from fairly good to good.

Latvia: June was characterised by warm and dry weather The rainfall was slight and irregular The condition of winter wheat on 15 June was stated to be average in 45.3 % of the reports, above average in 30.9 % and below average in 14.0 %. Corresponding figures for winter rye were 43.5 %, 37.8 % and 18.7 % and for barley 41.2 %, 42.9 % and 15.9 %.

Lithuania. There was little rainfall during June and the drought was more pronounced than in previous years. The spring cereals were sown in very good conditions.

Luxembourg: The cereal crops improved after the rains of June and now appear to be in good condition.

Netherlands: The weather conditions during May were generally very favourable for the growth of cereals. There were frequent night frosts during the first half of June but the condition of the cereal crops at the middle of the month was very satisfactory.

Poland: According to reports of the Central Bureau of Statistics, weather conditions of the second half of May were marked by relatively low temperatures with frosts in the north-eastern and southern parts of the country and by an absence of rainfall except in the west. Their effect on growth was unfavourable. In the first half of

Area and Crop Condition.

COUNTRIES		AREA SOWN					CROP CONDITION (†)								
		1936	1935	Average 1930 to 1934	% 1936		1-VII-1936			1-VI-1936			1-VII-1935		
		Thousand acres			1935 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
WHEAT															
Germany	w)	4,727	4,754	4,642	99.4	101.8	2.3	—	—	2.4	—	—	2.5	—	—
	s)	404	470	667	85.9	60.5	2.6	—	—	2.5	—	—	2.7	—	—
*Austria	w)	...	579	513	...	...	2.1	—	—	1.9	—	—	1.9	—	—
	s)	...	30	22	...	...	2.3	—	—	2.0	—	—	2.2	—	—
Belgium		386	387	384	99.6	100.4	—	f)	—	e)	—	—	—	—	—
Bulgaria		2,644	2,729	3,078	96.9	85.9	—	—	—	—	—	—	—	—	—
Spain		10,768	11,063	10,820	97.3	99.5	—	—	—	—	—	—	—	—	—
*Estonia		...	154	127	...	...	—	—	w) 97	—	—	—	—	—	w) 82
Finland		190	174	71	109.1	268.2	—	—	—	—	—	—	—	—	—
France 1)		12,712	13,234	13,229	96.1	96.1	—	—	—	—	—	—	—	—	—
Scotland		90	101	66	89.3	135.5	—	—	90	—	—	90	—	100	—
Greece		2,104	2,118	1,623	99.3	129.6	—	—	—	—	—	—	—	—	—
Hungary		4,107	4,005	3,943	102.6	104.2	—	—	—	—	—	—	—	—	—
Latvia	w)	172	210	168	81.7	101.9	—	—	—	—	2) 100	—	—	—	—
Lithuania	w)	349	414	381	84.2	91.5	110	—	—	103	—	—	117	—	—
Luxemburg		43	43	30	100.0	142.0	2.1	—	—	2.3	—	—	1.9	—	—
*Norway		...	59	32	...	...	—	—	s) 89	—	—	—	s) 104	—	—
Netherlands	w)	315	320	223	98.4	141.5	—	2) 69	—	—	—	—	2) 71	—	—
	s)	54	60	44	90.3	122.3	2) 73	—	—	—	—	—	2) 79	—	—
Poland	w)	3,748	3,756	3,850	99.8	97.4	3.6	—	—	—	—	—	3.5	—	—
	s)	578	579	429	99.8	134.5	—	—	2.4	—	—	—	3.5	—	—
Romania		7,391	8,496	7,704	87.0	95.9	—	—	—	—	—	—	—	f)	—
*Switzerland	w)	...	141	131	...	...	83	—	—	86	—	—	—	—	—
Czechoslov.	3) w)	2,217	2,250	2,027	98.5	109.4	2.6	—	—	2.6	—	—	2.2	—	—
	s)	124	137	120	90.4	102.9	2.6	—	—	2.6	—	—	2.8	—	—
Yugoslavia	w)	5,456	5,354	5,184	101.9	105.3	—	—	—	—	—	—	—	—	—
Total Europe		*58,579*	*60,654*	*58,683*	*96.6*	*99.8*	—	—	—	—	—	—	—	—	—
U. S. S. R.	w)	34,721	32,507	27,080	106.8	128.2	—	—	—	—	—	—	—	—	—
Canada	w)	4) 538	5) 555	5) 576	96.9	93.4	—	—	89	—	—	95	—	—	94
	s)	6) 24,354	5) 23,561	5) 25,106	103.4	97.0	—	—	82	—	—	95	—	—	96
United States	w)	4) 37,875	5) 33,353	5) 54,171	113.6	94.3	—	—	66.3	—	—	66.7	—	—	73.0
	s)	4) 13,184	5) 17,995		73.3		—	—	45.7	—	—	66.9	85.1	—	—
Total America		*75,951*	*75,464*	*79,853*	*100.6*	*95.1*	—	—	—	—	—	—	—	—	—
India 7)		33,500	34,482	33,316	97.2	100.6	—	—	—	—	—	—	—	—	—
Japan		1,686	1,627	1,356	103.7	124.4	—	—	f) g)	—	—	f) g)	—	f)	—
Syria and Lebanon		1,317	1,288	1,245	102.2	105.7	—	—	—	—	—	85	—	—	—
Total Asia		*36,503*	*37,397*	*35,917*	*97.6*	*101.6*	—	—	—	—	—	—	—	—	—
Algeria		4,082	4,095	3,893	99.7	104.9	—	—	—	—	f)	—	—	—	—
Egypt		1,464	1,463	1,560	100.0	93.8	110	—	—	110	—	—	107	—	—
French Morocco		3,205	3,616	2,887	88.6	111.0	—	—	—	—	—	—	—	—	—
Total Africa		*8,751*	*9,174*	*8,340*	*95.4*	*104.9*	—	—	—	—	—	—	—	—	—
Australia		12,400	11,809	15,223	105.0	81.5	—	—	—	—	—	—	—	—	—
GRAND TOTAL	m)	**192,184**	**194,498**	**198,016**	**98.8**	**97.0**	—	—	—	—	—	—	—	—	—
	n)	**226,905**	**227,005**	**225,096**	**100.0**	**100.8**	—	—	—	—	—	—	—	—	—
RYE															
Germany	w)	10,971	11,089	10,971	98.9	100.0	2.4	—	—	2.4	—	—	2.6	—	—
	s)	143	167	170	85.6	83.9	2.6	—	—	2.6	—	—	2.9	—	—
*Austria	w)	...	887	902	...	...	2.3	—	—	2.1	—	—	1.9	—	—
	s)	...	44	41	...	...	2.4	—	—	2.2	—	—	2.3	—	—
Belgium		525	529	553	99.3	94.9	—	f)	—	e)	—	—	—	—	—
Bulgaria		431	433	562	99.5	76 7	—	—	—	—	—	—	—	—	—
Spain		1,471	1,401	1,460	104.9	100.7	—	—	—	—	—	—	—	—	—

COUNTRIES	Area Sown					Crop condition (†)								
	1936	1935	Average 1930 to 1934	% 1936 1935 = 100	% 1936 Aver. = 100	1-VII-1936			1-VI-1936			1-VII-1935		
	Thousand acres					a)	b)	c)	a)	b)	c)	a)	b)	c)
*Estonia	...	357	365	...	...	101	—	—	—	—	—	—	—	87
Finland	593	598	553	99.2	107.2	—	—	—	—	—	—	—	—	—
France	1) 1,635	1) 1,660	1,745	98.5	93.7	—	—	—	—	—	70	—	—	—
Greece	166	185	173	89.7	95.6	—	—	—	—	—	—	—	—	—
Hungary	1,619	1,548	1,583	104.6	102.3	—	—	—	—	—	—	—	—	—
Latvia . . . . w)	592	658	617	89.9	95.9	—	—	—	—	2)110	—	—	—	—
Lithuania . . . w)	1,206	1,258	1,219	95.8	98.9	110	—	—	103	—	—	117	—	—
Luxemburg	19	19	20	100.0	98.0	1.2	—	—	2.1	—	—	1.9	—	—
*Norway	...	15	16	...	...	—	—	w)94	—	—	—	—	—	97
Netherlands	544	519	440	104.9	123.7	2) 73	—	—	—	—	—	2)70	—	—
Poland . . . w)	14,315	14,229	14,153	100.6	101.1	3.5	—	—	—	—	—	3.5	—	—
s)	63	64	62	99.4	102.0	3.1	—	—	—	—	—	3.4	—	—
Romania	798	960	941	83.1	84.8	—	—	—	—	—	—	—	f)	—
*Switzerland	...	35	44	...	...	84	—	—	86	—	—	—	—	—
Czechoslovakia w)	2,483	2,464	2,489	100.8	99.7	2.8	—	—	2.9	—	—	2.3	—	—
s)	47	50	60	94.5	79.7	—	—	—	—	—	—	—	—	—
Yugoslavia . . . w)	546	542	516	100.7	105.9	—	—	—	—	—	—	—	—	—
Total Europe	*38,167*	*38,373*	*38,287*	*99.5*	*99.7*	—	—	—	—	—	—	—	—	—
U. S. S. R. . . . w)	57,426	58,607	64,255	98.0	89.4	—	—	—	—	—	—	—	—	—
Canada . . . w)	4) 506	5) 574	5) 658	88.2	76.9	—	—	68	—	—	84	—	—	96
s)	6) 144	5) 146	5) 200	98.8	72.1	—	—	79	—	—	93	—	—	94
United States	4) 3,015	5) 4,196	5) 2,917	71.9	103.3	—	—	50.9	—	—	63.2	87.3	—	—
Total America	*3,665*	*4,916*	*3,775*	*74.6*	*97.1*	—	—	—	—	—	—	—	—	—
Algeria	2	3	3	66.3	48.5	e)	—	—	e)	—	—	—	—	—
GRAND TOTAL . m)	**41,834**	**43,292**	**42,065**	**96.6**	**99.4**	—	—	—	—	—	—	—	—	—
n)	**99,260**	**101,899**	**106,320**	**97.4**	**93.4**	—	—	—	—	—	—	—	—	—
BARLEY														
Germany . . w)	1,060	958	616	110.6	172.0	2.3	—	—	2.3	—	—	2.5	—	—
s)	2,955	3,012	3,299	98.1	89.6	2.5	—	—	2.5	—	—	2.6	—	—
*Austria . . . w)	..	22	19	...	...	2.2	—	—	2.1	—	—	2.1	—	—
s)	...	380	402	. .	...	2.1	—	—	2.0	—	—	2.2	—	—
Belgium	98	96	89	102.0	110.3	—	f)	—	e)	—	—	—	—	—
Bulgaria	488	501	607	97.5	80.4	—	—	—	—	—	—	—	—	—
Spain	4,528	4,536	4,481	99.8	101.0	—	—	—	—	—	—	—	—	—
Finland	324	315	306	102.9	105.7	—	—	—	—	—	—	—	—	—
France	1) 1,790	1) 1,809	1,819	99.0	98.4	—	—	—	—	—	—	—	—	—
Scotland	77	77	84	100.6	91.8	—	—	—	—	—	95	—	100	—
Greece	503	557	541	90.3	92.8	—	—	—	—	—	—	—	—	—
Hungary	1,134	1,181	1,167	96.0	97.2	—	—	—	—	—	—	—	—	—
*Lithuania	...	508	490	...	...	110	—	—	—	—	—	113	—	—
Luxemburg	6	6	8	100.0	68.1	2.4	—	—	2.8	—	—	2.1	—	—
*Norway	...	153	140	. .	..	—	100	—	—	—	—	101	—	—
Netherlands w)	38	37	21	101.9	180.4	2)70	—	—	—	—	—	2)72	—	—
s)	67	64	43	105.3	155.0	2)69	—	—	—	—	—	2)70	—	—
Poland . . . w)	79	80	105	98.5	74.9	3.6	—	—	—	—	—	3.1	—	—
s)	2,940	2,931	2,895	100.3	101.6	3.4	—	—	—	—	—	3.4	—	—
Romania	4,197	4,079	4,571	102.9	91.8	—	—	—	—	—	—	—	f)	—
*Switzerland	...	14	17	...	..	82	—	—	87	—	—	—	—	—
Czechoslovakia w)	15	14	17	110.9	90.7	—	—	—	—	—	—	—	—	—
s)	1,581	1,586	1,683	99.7	93.9	2.5	—	—	2.7	—	—	2.5	—	—
Yugoslavia . . . w)	613	594	617	103.1	99.3	—	—	—	—	—	—	—	—	—
Total Europe	*22,493*	*22,433*	*22,969*	*100.3*	*97.9*	—	—	—	—	—	—	—	—	—
Canada	6) 4,055	5) 3,887	5) 4,076	104.3	99.5	—	—	87	—	—	93	—	—	98
United States	4) 8,827	5) 12,243	5) 10,640	72.1	83.0	—	—	60.3	—	—	75.3	87.6	—	—
Total America	*12,882*	*16,130*	*14,716*	*79.9*	*87.5*	—	—	—	—	—	—	—	—	—
Japan	1,918	1,916	2,019	100.1	95.0	—	—	f) g)	—	—	f) h)	—	f)	—
Syria and Lebanon	751	715	797	105.1	94.3	—	—	—	—	—	85	—	—	—
Total Asia	*2,669*	*2,631*	*2,816*	*101.5*	*94.8*	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1936	1935	Average 1930 to 1934	% 1936		1-VII-1936			1-VI-1936			1-VII-1935		
	Thousand acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Algeria	3,045	3,104	3,350	98.1	90.9	—	—	—	—	f)	—	—	—	—
Egypt	282	281	319	100.6	88.6	—	—	—	115	—	—	—	—	—
French Morocco .	4,151	4,303	3,464	96.5	119.8	—	—	—	—	—	—	—	—	—
Total Africa . . .	*7,478*	*7,688*	*7,133*	*97.3*	*104.9*	—	—	—	—	—	—	—	—	—
GRAND TOTAL .	**45,522**	**48,882**	**47,634**	**93.1**	**95.6**	—	—	—	—	—	—	—	—	—
OATS														
Germany .	6,850	6,915	8,113	99.1	84.4	2.7	—	—	2.7	—	—	2.8	—	—
*Austria . .	...	742	762	...	...	2.1	—	—	2.0	—	—	2.4	—	—
Belgium .	691	714	716	96.8	96.5	—	f)	—	e)	—	—	—	—	—
Bulgaria	256	268	314	95.6	81.6	—	—	—	—	—	—	—	—	—
Spain . . . . . w)	1,358	1,619	1,767	83.8	76.8	—	—	—	—	—	—	—	—	—
Finland . .	1,087	1,163	1,126	93.5	96.6	—	—	—	—	—	—	—	—	—
France .	1) 8,217	1) 8,193	8,357	100.3	98.3	—	—	—	—	—	—	—	—	—
Scotland	836	827	847	101.1	98.7	—	—	—	105	—	—	—	100	—
Hungary .	521	553	581	94.3	89.8	—	—	—	—	—	—	—	—	—
*Lithuania	...	841	880	.		117	—	—	113	—	—	117	—	—
Luxemburg . . .	66	66	70	100.0	94.5	2.5	—	—	2.9	—	—	2.0	—	—
*Norway .	..	215	236		.	—	—	98	—	—	—	—	100	—
Netherlands . .	332	316	350	105.1	94.8	2)69	—	—	—	—	—	2)69	—	—
Poland	5,582	5,521	5,434	101.1	102.7	3.4	—	—	—	—	—	3.3	—	—
Romania	2,039	1,970	2,178	103.5	93.6	—	—	—	—	—	—	—	—	—
*Switzerland	...	25	40		.	81	—	—	80	—	—	—	—	—
Czechoslovakia .	1,924	1,921	2,014	100.1	95.5	2.7	—	—	2.7	—	—	2.9	—	—
Yugoslavia w)	85	66 8)	78	129.3	108.4	—	—	—	—	—	—	—	—	—
Total Europe . . .	*29,844*	*30,112*	*31,944*	*99.1*	*93.4*	—	—	—	—	—	—	—	—	—
Canada	6) 14,150	5) 14,096	5) 13,301	100.4	106.4	—	—	87	—	—	93	—	—	96
United States . .	4) 34,440	5) 39,924	5) 37,556	86.3	91.7	—	—	60.6	—	—	74.5	87.5	—	—
Total America	*48,590*	*54,020*	*50,857*	*90.0*	*95.5*	—	—	—	—	—	—	—	—	—
Syria and Lebanon	29	30	30	93.3	94.7	—	—	—	—	—	90	—	—	—
Algeria	473	434	516	108.9	91.6	—	—	—	e) f)	—	—	—	—	—
French Morocco	73	70	73	103.5	100.3	—	—	—	—	—	—	—	—	—
Total Africa	*546*	*504*	*589*	*107.8*	*92.4*	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	**79,009**	**84,666**	**83,420**	**93.3**	**94.7**	—	—	—	—	—	—	—	—	—

(†) See explanation according to the various systems, page 457 — *) Countries not included in the totals. — *a*) Above the average — *b*) Average. — *c*) Below the average. — *d*) Very good. — *e*) Good — *f*) Average. — *g*) Poor. — *h*) Very poor. — *m*) Not including U.S.S.R. — *n*) Including U.S.S.R. — *w*) Winter crop. — *s*) Spring crop. — 1) Acreages sown up to 1 May — 2) Middle of the previous month — 3) Including spelt — 4) Area indicated for harvest — 5) Area harvested — 6) Area to be sown according to farmers' intentions on 1 May 1936. — 7) Fourth estimate — 8) Average 1933 and 1934.

June there were heavy rains and a rise in temperatures The condition of the cereal crops on 15 June was better than it was in the previous month as the following figures show:—

	15 June	15 May
Winter wheat	3.5	3.4
Spring wheat	3.2	3.1
Winter rye	3.5	3.2
Spring rye	3.0	2.9
Winter barley	3.5	3.3
Spring barley	3.2	3.0
Oats	3.2	3.0

There was an appreciable improvement in winter rye, spring barley and oats especially in the south.

As a result of the cold and dry weather of the spring, the winter crops are in better condition than the spring crops.

Flowering occurred in good conditions. Hail damage was only local (85 % of the reports). Only 18 % of the reports indicate lodging and in most cases (86 %) it is of slight extent.

Between 15 June and 5 July, crop condition underwent changes. Winter rye alone showed no change. Spring wheat fell off in condition but all other cereals improved.

Romania: Heavy rains fell in several districts in the first half of July with the result that soil moisture is everywhere sufficient and in some places even overabundant.

The cereal crop prospects are improving daily. It is anticipated that there will be large supplies of wheat and barley available for export. At present there are only private estimates of the size of the outturn If good weather conditions prevail during the harvest, the quality of the wheat and barley will be good.

Czechoslovakia: May and the first half of June were wet, expecially during the last weeks of this period when rainfall was exceptionally heavy. The rains were particularly heavy in Chuma where showers caused much damage. Rivers overflowed their banks in South Bohemia and later in the Bezkydy region, in eastern and north-west Slovakia and Sub-Carpathian Russia. The first half of May was warm, particularly in the east. The second half of May and the first half of June were cold

In the middle of June, the weather cleared up and temperatures suddenly went above normal and were maintained nearly everywhere until the end of the month, especially in the west. In Slovakia and Sub-Carpathian Russia only there were temporary falls in temperature and local and sometimes stormy showers. In the southern parts of Bohemia and Moravia there were some disastrous storms. Some local storms occurred at the end of last month in the west and far east of the country. In central areas the weather was generally consistently clear, warm and dry.

The crops that had suffered from the unusually abundant rainfall and cold of the end of May and the first days of June improved with the fine and warm conditions which prevailed during the second half of June. There is thus less fear of lodging of winter wheat which in low lying places had flowered in favourable conditions. In some of these areas the condition of the crops is reported to be very good. Reports from other areas are less favourable, particularly those which had been affected by the rains and storms of the end of June. The condition of winter wheat is thus rather uneven, an improvement having occurred only in some areas.

The crops of winter rye, which to a great extent flowered in wet and adverse conditions, did not recover from lodging. The crop will be less satisfactory in quantity and quality. Harvesting of the crops that have been laid will be difficult. There will be a good yield of straw from the winter cereals.

Where there was no lodging, spring barley is growing well after the recent rains in some areas Oats up to the present have also been satisfactory but they are not as good as the barley. The warm and dry weather is beginning to show adverse results in some areas. Rains are needed to prevent a deterioration in the situation of spring cereals.

Disease and insect damage are limited.

Yugoslavia: During the first decade of June weather was variable, but mainly wet and rather cool. The rain provided good supplies of moisture but in some areas it resulted in lodging and in the spread of blight. Weather during the last two decades of the month was warm and sunny and favourable for ripening.

Notwithstanding some damage to wheat in the Danube and Zeta banovines resulting from the adverse weather conditions, a plentiful crop of good quality is expected in all parts of the country.

Harvesting was facilitated by fine weather and made rapid progress. Threshing of wheat and barley began at the end of the first decade of July.

U. S. S. R.: The total area under all spring cereals was estimated on 25 June at 226,278,000 acres, or 100 % of the Plan, against 226,710,000 at the same date last year. About 86 % of the area was in collective farms, 12 % in Government farms and 2 % in private farms. The collective holdings had sown 103 % of the area fixed in the Plan, Government holdings 93 % and private farms only 50 %.

During the whole of June there were frequent and abundant rains in the south-west (North Caucasus, Crimea and Ukraina) which were of benefit to the cereal crops. The crop prospects in these regions are good.

In the western and central regions of the European territories rainfall in June was lighter. Dry conditions prevailed in eastern and south-eastern regions.

During the last decade of June and the first of July it was warm and dry in nearly all parts and growth was quicker.

At the end of the first decade and in the first days of the second decade of July there were plentiful rains in eastern and south-eastern regions.

Harvesting of grain began at the end of June in the south (North Caucasus, Crimea, Ukraina) and it progressed also in the first half of July to other regions (central and south-eastern) where the crops were reaching maturity.

Argentina (Telegram of 17 July). Field work was delayed by the wet conditions

Canada: Owing to the persistence of warm and dry conditions over the greater part of the Dominion, the crop conditions returned on 30 June for the whole of Canada were considerably lower than those of 31 May and also well under the corresponding figures for last year. The spring wheat crop showed a condition equivalent to 82 % of the normal as compared with 95 % in the preceding month. Winter wheat, barley and oats declined 6 points On the basis of these figures and the longtime average yield per acre, the yield of spring wheat would amount roughly to 201 million centals (336 million bushels) and that of winter wheat to about 7 million centals (11 million bushels), making of a total of 208 million centals (347 milion bushels). The figures are only approximate and based, in the case of spring wheat, on the area intended to be sown in May. Moreover, the actual results depend mainly on the conditions which prevail during July and August. The estimates made in commercial quarters at the same period indicated a somewhat larger outturn. At this time last year, a total wheat production of 230 million centals (383 million bushels was forecast, but, as a result of the adverse conditions which followed, the actual outturn reached only 166 million centals (277 million bushels).

Prospects become still more unfavourable in the first half of July. Record temperatures with inadequate precipitation caused severe losses throughout the Prairie Provinces and in much of Ontario. Crop prospects declined sharply and it was feared that, without abundant and immediate rains, large areas would be wiped out. The yields of spring cereals will be much below normal.

Crops in Quebec did not suffer unduly while the Maritime Provinces experienced cool and showery weather and crops developed normally. British Columbia enjoyed ideal weather and the prospects for all crops are good.

(See also *Latest Information*)

United States: The period from the middle of June to the middle of July was very unfavourable to the spring wheat crops owing to the high temperature and the continued dryness. The winter wheat crops were generally harvested in good conditions but the late fields were damaged.

The crop conditions returned on 1 July reflected the deterioration which had occurred in June in the spring wheat crops. The condition figure of this crop at 45.7 was more than 20 points lower than that of 1 June and more than 30 points below the ten-year average. The winter wheat, harvesting of which is now well advanced, showed only a slight decline as only the late fields were liable to suffer from excessive heat and drought. The new estimate of the outturn of winter wheat, owing to the upward revision of the area figure, is 18 million centals (30 million bushels) larger than the previous forecast. It is now expected to reach 307 million centals (512 million bushels) compared with a revised final estimate for 1935 of 279 million centals (464 million bushels). The area under all spring wheat is estimated this year at slightly more than 13 million acres only, that is about three-quarters of the area harvested last year and of the average of the previous five years. The outturn, at the anticipated figure of 76 million centals (126 million bushels), will fall short of last year's moderate yield by 20 % and will compare still more unfavourably with the average. The total wheat crop of the United States, according to the prospects on 1 July, will thus amount roughly to 383 million centals (638 million bushels) and is not expected to cover internal requirements completely.

Temperatures in the first week of July continued to be abnormally high in the north-west and somewhat above normal in the south-east There were heavy rains in many areas but no relief over large north-western areas The winter wheat harvest at this time had reached the northern part of the belt and threshing was in progress in the southern part. The spring wheat crops east of the Rockies continued to suffer from heat and drought. The second week of July brought no change in conditions except in the western Mountain States and in parts of the north-western Great Plains where there were good rains which, however, came too late to save the bulk of the grain crops. Conditions in other States in the Great Plains from Oklahoma to the north were bad and the spring wheat outlook was discouraging.

(See also *Latest Information*).

Iran: The provisions of the Department of Agriculture have finally eliminated the danger of destruction of the cereal crops by locusts. According to the estimates, 99,000 acres have been affected in the southern provinces. The rains in these areas were very beneficial and resulted in high yields of all crops.

Turkey (Telegram of 16th July) The Central Office of Statistics at Angora has issued preliminary figures of the cereal crops in 37 chief *vilayets*. These figures are given below with the totals for 1935 and for the preceding five years.

		1936	1935	Average 1930-34
Wheat	thousand centals	48,170	55,585	55,878
	thousand bushels	80,281	92,640	93,128
Rye	thousand centals	4,225	4,765	6,236
	thousand bushels	7,544	8,508	11,136
Barley	thousand centals	30,777	30,237	33,523
	thousand bushels	64,120	62,994	69,841
Oats	thousand centals	5,266	5,114	3,333
	thousand bushels	16,456	15,983	10,414
Spelt	thousand centals	224	1,324	1,873

Algeria: The first half of June was characterised by uncertain weather with temperatures below normal and some hailstorms. Rainfall was plentiful in Alger and Oran but lighter in Constantine. Weather during the second half of the month was warm and dry in the first two *départements*. Temperatures in Constantine became normal only towards the 20th. of the month but they then permitted a resumption of work which had been temporarily delayed.

These conditions were generally unfavourable for the crops which suffered owing to the excessive moisture and from serious attacks of rust, stem-rot, blight and insects (wheat grub in Constantine, unspecified insects in Oran and *Cecidomiya* in Alger).

In Constantine, it was officially estimated at the beginning of July, according to crop condition and the first threshing results, that the hard wheat crop would be roughly 5.5 million centals (9.2 million bushels), that is, about 2 million centals (4 million bushels) smaller than last year's production and. The soft wheat crop was expected to be about 660,000 centals (1,102,000 bushels), or 35 per cent below last year's.

At 660,000 centals (1,378,000 bushels) the barley crop will be 45 per cent below last year's.

The quality of the grain is mediocre. On the whole the soft wheats have a good weight but the hard wheat is somewhat *mitadiné*. Good grain for flour pastes is rare. Only the northern areas will be able to supply merchantable barley and the grain, though well developed, has lost colour

The hard wheat crop of Oran was destroyed by rust in several places and will not in some cases be harvested. Elsewhere yields are poor and will not be more than 5.4 centals (9 bushels) per acre The quality, except that of early wheat, is very poor. The soft wheat crop will be 40 per cent smaller than last year's The barley crop is of average quality but the grain is small. Oats are very light in several areas and the crop, which otherwise would have been excellent, will therefore be smaller.

In Alger, the situation appears to be a little better on the whole but very uneven. Though yields are satisfactory in the Alger and Tizi Ouzon districts, losses varying between 10 to 90 per cent are reported in Orléansville and a low crop in the Miliana district, both of which are very important

The information as a whole appears to indicate a decrease in the hard wheat crop of 3.3 million centals (5.5 million bushels), the total will not reach 11 million centals (18 million bushels). The soft wheat crop will be nearly 4 million centals (7 million bushels) smaller at 3.5 million centals (5.0 million bushels). The barley outturn will hardly reach 9.9 million centals. The oat crop seems to be at least as large as last year's outturn

Kenya During April planting of cereals in the chief producing areas was favoured by the slackening off in rains, and proceeded satisfactorily.

French Morocco: The rainy season ended at the beginning of June but some rain and hail occurred at this time and caused appreciable though local damage among the native grain crops. The second half of June was fine and appreciably warmer.

The crop estimates were appreciably reduced as a result of the unfavourable conditions experienced during the period of ripening and harvesting. The yield of wheat is particularly light. Hard wheat yielded 2.9 centals (4.8 bushels) per acre against an average for 1930 to 1934 of 4.5 centals (7.4 bushels), soft wheat 3.1 centals (5.2 bushels) against an average of 6.2 centals (10.3 bushels). The production of soft wheat, at 7,203,000 centals (12,004,000 bushels), is 13.8 % below the poor outturn of last year and 42.1 % below the average. Soft wheat production is placed at 2,116,000 centals (3,527,000 bushels), or barely 54.7 % of last year's results and 40.1 % below the average:

The barley crop, however, appears to be comparatively satisfactory although the estimate is smaller than that made in previous months. The average yield is 7.0 centals (11.6 bushels) per acre compared with an average of 7.3 centals (12.2 bushels) per acre. The results were particularly good in the south.

The wheat grain is small, shrivelled and light and unsuitable in most cases for seed.

The Government has placed a ban on wheat exports. It is attempting to secure a proper distribution of existing supplies, particularly seed, and to grant growers a sufficient minimum of material and financial means for next year.

Australia: Work on the land in Western Australia was hindered by the lack of rain in March and April. Last month, however, rainfall was general and sowings were completed. The crop is in fairly good condition. In South Australia and New South Wales the appearance of the crop is favourable. Sowings in Victoria were delayed by the lack of rain but rainfall was general in June and July: crop condition is satisfactory.

The area under wheat in the whole of Australia in 1936-37 is expected to show an increase of 5 per cent on that of the year 1935-36.

MAIZE

Austria: Maize was backward early in June but the crops had a satisfactory appearance.

Spain: Sowing was finished in average condition The crops in Andalusia are late but good progress was observed in Levante, Aragon, Navarre and Catalonia. Resowing was necessary in some areas.

France: The rise in temperature and the rains which fell after the middle of June were in many places of benefit to the maize crops but in the south-west the crops were suffering from an excess of moisture. In the middle of July the situation appeared fairly satisfactory on the whole.

Hungary On 23 June the maize crops were reported to have benefited from the heavy rains and the sunny weather and to be growing vigorously. The second hoeing was finished in some parts The early varieties (table maize) had eared.

Italy: Maize sowings were done in unfavourable conditions. The crop, however, was in good condition at the end of June.

Romania: On 10 July maize was growing well. The prospects at this date were favourable but it is to be remembered that the outcome of the maize crop in Romania depends largely on the rainfall between 15 July and 15 August.

Czechoslovakia: The maize crops in Slovakia are growing normally on the whole.

Yugoslavia: Maize grew well with the frequent rains of the first decade of June. The weather of the last two decades was warm and dry but at the end of the month the crop had a good appearance. A plentiful crop is expected.

U. S. S. R.: The chief maize areas (Ukraina and North Caucasia) experienced frequent and heavy rains throughout June. Dry and very hot weather prevailed in the first half of July.

Argentina (Telegram of 16 July)· According to the second official estimate of the maize crop, the expected production is 213,783,000 centals (381,756,000 bushels), that is, 15.5 per cent smaller than last year's [253,092,000 centals (452,950,000 bushels)] but 25.2 % larger than the average outturn of the preceding quinquennium [170,722,000 centals (304,865,000 bushels)]. The excessive rains caused serious damage to the

Maize.

COUNTRIES	AREA					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1-VII-1936			1-VI-1936			1-VII-1935		
	1,000 acres			1935 = 100	Aver. = 100									
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	...	162	156	...	...	2.7	—	—	2.5	—	—	2.5	—	—
Bulgaria	1,508	1,499	1,739	100.6	86.7	—	—	—	—	—	—	—	—	—
France 1)	796	786	807	101.3	98.7	—	—	—	—	—	61	—	—	—
Romania	12,963	12,773	11,757	101.5	110.3	—	—	—	—	—	—	d)	—	—
Czechoslovakia 2)	208	194	3) 222	107.2	93.8	—	—	—	—	—	—	—	—	—
Canada	163	168	144	97.2	113.0	—	—	89	—	—	—	—	—	95
United States	4) 98,517	5) 95,333	5) 103,284	103.3	95.4	—	—	72.8	—	—	—	—	—	67.5
French Morocco	1,050	959	848	109.5	123.8	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 457 — *a)* Above the average — *b)* Average — *c)* Below the average — *d)* Excellent — 1) Areas estimated on 1 June — 2) Crop grown alone — 3) 1934 only — 4) Area expected to be harvested — 5) Area harvested

quality of the crop and harvesting is taking place in bad conditions. The weather conditions are seriously hindering threshing

United States Owing to the continued heat and drought of recent weeks, much of the maize crop in the south-western part of the belt was reported to be permanently damaged in the second week of July.

The first official estimate of maize production, based on the area and condition on 1 July, places production at 1,257,107,000 centals (2,244,834,000 bushels) According to the revised estimates, production in 1935 was 1,283,312,000 centals (2,291,629,000 bushels) and the average of the five years ending 1934 was 1,282,974,000 centals (2,291,025,000 bushels).

Indo-China The condition of the maize crops in Tonkin was satisfactory at the end of April There was some worm damage. The harvest was satisfactory in the north and central provinces of Annam where it had been completed It promised to be satisfactory in the other central provinces In the south and far south it was poor owing to the insufficiency of rain. Preparations for a second season began in some central provinces at the end of April.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area —

	1936 acres	1935 acres
Area harvested in May	158,400	259,000
Area harvested from 1 January to 31 May	3,012,500	2,797,000
Area of standing crops at the end of May	1,152,500	1,114,200

Turkey (Telegram of 16 July) According to the Central Office of Statistics, the provisional estimate of the 1936 maize crop in 37 of the chief *vilayets* is 11,154,000 centals (19,917,000 bushels) compared with a total crop of 10,177,000 centals (18,173,000 bushels) and an average total of 10,716,000 centals (19,135,000 bushels) in the five years 1930 to 1934.

French Morocco: The rainy season ended early in June but some storms occurred later. During the second half of June weather was fine and temperature appreciably higher. The conditions were generally very favourable for maize. Some sowings were still being done at the end of June. The crops on the whole were growing well. The crop this year is a record one in both area and probable outturn The average yield per acre will not, however, be larger than last year's.

Tanganyika: As revised at 1 May, 1936, the quantity of maize available for sale was estimated at 421,000 centals (751,000 bushels).

Union of South Africa: Although light frosts occurred during the first week of May in some of the Transvaal highveld districts and portions of the Orange Free State, the first sharp frosts were only experienced towards the middle of the month It would appear that all maize which could reasonably have been expected to mature before the advent of sharp frost had developed sufficiently not to suffer material frost damage.

A fair amount of damage by cob-grub is reported and, as a result of the late planting season, the weight of maize which was still slightly subject to frost damage will be below normal. In some areas, however, the maize developed exceptionally well and the grain will be of good quality.

Compared with the April figure, the estimate for May shows a decrease of only 1.4 per cent. in production. Production is now placed 30,876,200 centals (55,136,100 bushels) against 37,456,000 (66,885,700) in 1934-35 and 35,955,000 (64,205,500) on the average of the five years ending 1933-34, percentages, 87 4 and 85 9

RICE

Bulgaria: According to the most recent estimate, the area under rice this year is about 24,700 acres against 17,300 in 1935 and 17,900 on the average of the five years ending 1934, percentages 143.2 and 138 4

Spain: Replanting was done generally in good conditions and is now over.

Italy. Rice is progressing normally. Transplanting is going forward fairly regularly.

United States: The July estimate places rice production at 18,890,000 centals (41,997,000 bushels) According to the revised estimates, production in 1935 was 17,159,000 centals (38,132,000 bushels) while the average yield of the preceding five years was 18,707,000 centals (41,572,000 bushels); percentages, 110.1 and 101 0.

Taiwan: Earing of the first crop rice it almost finished. Crop condition is average.

Indo-China: In Tonkin and Annam the first crop rice (5th month and first quarter) was in good condition in all parts at the beginning of May but the drought was beginning to show its effects in Tonkin. In South Annam the harvesting of spring rice was finished at the beginning of April; yields were slightly below normal owing to the insufficiency of rain during the final months of growth. The preparation of fields for the second crop was progressing at a good rate in all parts of Tonkin and Annam. Preparations for the coming season had begun Cochin-China and Cambodia. The condition of dry season rice in the latter country was normal at the beginning of May.

Java and Madura · The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:—

	1936 acres	1935 acres
Area harvested in May—		
Wet padi	2,219,300	2,483,000
Dry padi	95,600	60,900
Area harvested 1 January to 31 May -		
Wet padi	4,033,600	4,634,300
Dry padi	903,700	914,800
Area of standing crop at the end of May —		
Wet padi	3,987,100	3,228,000
Dry padi	67,000	36,300

British Malaya The weather in April was showery, as is usual for this month· precipitation was somewhat below normal in many areas, but in others it was equal to or in excess of the average. Along the west coast from Krian southward rainfall was deficient practically throughout

Harvest was completed almost everywhere at the end of the month In Kedah, returns showed a record crop due, in part at least, to an increase in the planted area. Production in Penang and Province Wellesley was stated to be considerably below that of 1935, and in the Bruas district of Perak was poor Elsewhere, however, average crops were expected. Some good yields were recorded from the Panchang Bedena area in Selangor. Work on this season's crop was in progress in the inland parts of Selangor, the riverine rice areas of Pahang and in northern and central Johore.

Turkey: According to a cable received from the Central Office of Statistics at Angora, the coming rice crop in 37 of the chief *vilayets* is expected to reach 2,452,000 centals (5,448,000 bushels) against a total production of 1,979,000 centals (4,399,000 bushels) in 1935 and an average of 1,005,000 centals (2,233,000 bushels) in the preceding five years.

Tanganyika: As revised at 1 May, 1936, the quantity of paddy available for sale was estimated at 122,000 centals (270,000 bushels), that of rice being confirmed at 261,000 centals (581,000 bushels)

POTATOES

Germany The soil moisture at the beginning of June and the warm weather of the second half of the month resulted in an improvement in the condition of the potato crops.

Austria: The leaves of the potato plants have grown well but the crop is late. There was a serious extent of weeds.

Belgium · Potatoes suffered severely from frosts at the beginning of June of which the chief result will be a delay in growth. Lifting of the early crop is in full swing with satisfactory yields.

Spain: The main crop potatoes look well except in Andalusia and along the coast of Catalonia where moisture was excessive. The yields of the early crop were below average.

France: The rise in temperatures and the rather abundant rainfall experienced between mid-June and mid-July were favourable for potatoes The condition of the crop was fairly satisfactory in the middle of July but the spread of *Doryphora* will probably reduce the yields.

Potatoes.

COUNTRIES	AREA					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1-VII-1936			1-VI-1936			1-VII-1935		
	1,000 acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . a)	289	326	600	88 7	48 3	2 6	—	—	2 7	—	—	2.9	—	—
Germany . . b)	...	6,458	6,469	...	...	2 7	—	—	2 8	—	—	2 8	—	—
Austria	...	494	490	.	..	2 3	—	—	2 1	—	—	2,4	—	—
Belgium	402	403	413	99 8	97 4	—	f)	—	e)	—	—	—	—	—
Bulgaria	42	36	34	116 9	125 0	—	—	—	—	—	—	—	—	—
Finland .	215	204	191	105 4	112 4	—	—	—	—	—	—	—	—	—
France	3.465	3,472	3,463	99 8	100 0	—	—	—	66	—	—	—	—	—
Lithuania		436	423	.		117	—	—	—	—	—	110	—	—
Luxemburg .	41	41	40	99 8	100.1	2 5	—	—	2 9	—	—	2 7	—	—
Norway		123	119			—	—	92	—	—	—	—	—	97
Netherlands	320	344	395	93 2	81 2	102	—	—	—	—	—	—	—	93
Poland . . .	...	6,998	6,724	. .	.	3 4	—	—	1) 3 3	—	—	3 4	—	—
Switzerland .	...	113	116	..		78	—	—	81	—	—	—	—	98
Czechoslovakia a)	105	99	90	105 9	117 1	2 6	—	—	1) 2 6	—	—	2 7	—	—
Czechoslovakia b)	1,765	1,752	1,692	100 7	104 3									
Canada . . .	515	507	556	101 6	92 6	—	—	95	—	—	—	—	—	96
Algeria . . . a)	16	15	21	104 4	75 9	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 457. — 1) At the middle of the month — a) Early potatoes — b) Late potatoes

Great Britain and Northern Ireland The early potato crops in England and Wales made good progress after the plentiful rains of the second half of June They are still backward, however, and general lifting will be later than usual In a few districts where lifting had begun the condition of the crop was reported to be satisfactory and the yield above average Main crop potatoes were generally looking well and making rapid growth, and the outlook at the end of June was favourable.

In Scotland, despite the dry weather conditions, potatoes made excellent progress during June and their condition at the end of the month was above average. Some slight frost damage occurred among the early varieties but there were no reports of disease.

Hungary: On 23 June potatoes were reported to be growing well with plentiful foliage. Tubers are well grown and plentiful but they need rain.

Luxemburg The rains of June brought about an improvement in the condition of the potato crops *Doryphora* made its first appearance and energetic steps were taken to remove it.

Netherlands: Potatoes suffered from rain and night frosts At the beginning of June, however, the weather was more favourable and crop condition at the middle of the month was good to fairly good.

Czechoslovakia · The second hoeing of the potato crops is progressing and has already been completed in some areas According to the reports of the crop correspondents, the general situation does not show an appreciable improvement. There were many reports of disease and weeds.

United States: According to the July estimate, the production of potatoes in 1936 will be about 189,215,000 centals (315,359,000 bushels) The revised estimates for 1935 and the preceding five years are 232,607,000 centals (387,678,000 bushels) and 221,941,000 centals (369,907,000 bushels) respectively; percentages 81.3 and 85.3.

Algeria: The liftings of the late varieties in Alger gave satisfactory results. In Constantine the tubers were in many cases affected by mildew and some suffered from the late spring frosts. In Oran the preparations for July plantings were progressing in fine weather at the end of June.

SUGAR

Germany: The good suplies of soil moisture and the warm weather of June favoured hoed crops in general and sugar beet in particular.

Acreage of sugarbeet.

COUNTRIES	1936 *)	1935	Average 1930 to 1934	% 1936	
	acres			1935 = 100	Average = 100
Germany	941,075	889,424	795,382	106	118
Austria	91,000	107,000	107,184	85	85
Belgium	127,400	127,231	133,172	100	96
Bulgaria	21,000	17,214	30,698	122	68
Denmark	111,000	122,600	96,605	91	115
Spain	227,000	153,000	223,305	148	102
Irish Free State	62,000	57,288	18,748	108	330
Finland	7,800	7,290	5,575	107	140
France	568,000	605,000	671,909	94	85
Great Britain	360,000	374,149	321,679	96	111
Hungary	111,000	108,770	127,899	102	87
Italy	259,000	210,000	237 833	124	109
Latvia	37,000	38,300	25,082	97	148
Lithuania	17,000	17,000	8,219	100	210
Netherlands	106,000	100,704	111,100	106	96
Poland	300,000	293,355	317,925	101	93
Romania	67,580	90,700	81,289	75	83
Sweden	126,500	125,134	105,488	101	120
Switzerland	4,130	3,700	3,519	111	117
Czechoslovakia	389,600	387,304	425,275	101	92
Yugoslavia	62,000	67,990	96,150	91	64
Total Europe a)	*3,996,085*	*3,903,153*	*3,941,036*	*102*	*101*
U.S S R	3,077,000	3,027,300	3,146,538	102	98
Total Europe b)	*7,073 035*	*6,930,453*	*7,090,574*	*102*	*100*
Canada 1)	54,000	52,600	44,591	103	109
United States	819,000	763,000	800,400	107	102
Total North America	*873 000*	*815,600*	*844,991*	*107*	*103*
Japan	49,012	36,760	23,421	133	209
Turkey	62,000	50,900	38,433	121	161
Total Asia	*111,012*	*87,660*	*61,854*	*126*	*179*
TOTALS a)	**4,980,097**	**4,806,413**	**4,850,881**	**104**	**103**
TOTALS b)	**8,057,097**	**7,833,713**	**7,997,419**	**103**	**101**

***) Approximate data. — *a)* Not including U.S.S.R. — *b)* Including U.S.S.R. — 1) Total area**

The analyses of the third week of July give the following results: average weight of root 5.0 ounces, average weight of leaves 13.4 ounces, sugar content 10.3 % and weight of sugar per root 0.5 ounces.

Sugar beet.

COUNTRIES	CROP CONDITION (†)								
	1st July, 1936			1st June, 1936			1st July, 1935		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
Germany	2.6	—	—	2.6	—	—	2.8	—	—
Austria	2.1	—	—	2.2	—	—	2.3	—	—
Belgium	*e)*	—	—	*e)*	—	—	—	—	—
Scotland	—	100	—	—	—	—	—	—	95
France	—	—	—	—	—	60	—	—	—
Lithuania	110	—	—	—	—	—	113	—	—
Netherlands	108	—	—	—	—	—	—	—	99
Poland	—	—	1) 3.2	—	—	—	—	1) 3.0	—
Czechoslovakia	2.3	—	—	2) 2.6	—	—	2.7	—	—
Canada	—	—	86	—	—	—	—	100	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 457 — 1) At middle of the preceding month — 2) At middle of the month.

Austria: The early sown beet crops have good foliage. The late sowings, owing to the cold and wet conditions, are still backward.

Spain: Except in Asturia, the crops are making good progress. A large crop is anticipated.

France: The period from 10 June to 10 July was marked by an appreciable rise in temperatures and by fairly heavy rain, particularly in the second half These conditions were favourable to beet which had been hindered by the cold and dry weather of May and June. The crop situation in the middle of July appeared to be fairly satisfactory.

Great Britain and Northern Ireland: Sugar beet was making rapid progress in England and Wales at the end of June and the condition of the plants was generally very satisfactory. The crops in Scotland withstood the drought remarkably well and in several districts plants had been thinned by the end of the month.

Hungary: On 23 June beets were reported to have a good appearance. The fields were practically covered by the foliage. Green-fly is present in some places.

Italy: Beets were growing satisfactorily at the end of June. There are, however, some reports of insect infestation.

Netherlands: The beet crops improved after the end of May. Growth in the north was held up by the dry weather in the middle of the month.

Poland: The crop situation at the end of June was good. In some areas, where the rainfall was plentiful, as, for example, in Pomerania, it was very satisfactory.

Czechoslovakia: As a result of the moist conditions and of the recent warm weather, the beet crops recovered. The second earthing up is progressing and, in some places, it is completed.

Yugoslavia: The weather conditions of the first half of June were favourable for sugar beet. A very large crop is anticipated.

Production of Cane Sugar.

Countries	1935-36 1)	1934-35	Average 1929-30 to 1933-34	1935-36 1)	1934-35	Average 1929-30 to 1933-34	% 1935-36 1934-35 = 100	% 1935-36 Average = 100
	Thousand centals			Short tons				
America.								
Antigua	370	392	391	18,500	19,600	19,565	94	95
Argentina	8,378	7,550	7,612	420,000	377,500	380,583	111	110
Barbados	2,845	1,825	2,129	142,200	91,267	106,452	156	134
Brazil	17,527	17,079	20,601	876,000	854,000	1,030,025	103	85
Cuba	57,761	57,653	65,701	2,890,000	2,882,632	3,285,017	100	88
Ecuador	430	425	438	21,500	21,300	21,889	101	98
United States (La)	6,834	4,680	3,880	340,000	234,000	194,000	146	176
Jamaica	2,094	1,719	1,354	105,000	85,960	67,720	122	155
Martinique	1,124	1,038	983	56,000	51,916	49,171	108	114
Mexico	7,121	5,842	4,769	356,000	292,000	238,423	122	149
Peru	8,708	8,597	8,988	435,000	429,854	449,405	101	101
Puerto Rico	18,519	15,628	17,810	930,000	781,382	890,466	118	104
Dominican Republic	9,568	9,501	8,425	478,000	475,051	421,233	101	114
Trinidad	3,086	2,638	2,250	150,000	132,000	112,475	117	137
Venezuela	493	419	473	24,640	21,000	23,640	118	104
Total America	*144,858*	*134,986*	*145,804*	*7 242,840*	*6,749,462*	*7,290,064*	*107*	*99*
Asia								
Taiwan	19,820	21,289	17,097	990,997	1,064,439	854,855	93	116
India 2)	132,272	114,442	87,494	6,614,000	5,722,000	4,375,000	116	151
Japan 3)	2,435	2,510	1,839	121,800	125,500	91,965	97	132
Java	12,334	11 322	45,143	616,670	566 091	2,257,099	109	27
Philippine Is. 4)	24,030	16,865	24,141	1,200,000	843,000	1,207,039	142	100
Total Asia	*190,891*	*166,428*	*175,714*	*9 543 467*	*8,321,030*	*8,785,958*	*115*	*109*
Africa								
Egypt	2,907	3,010	3,093	145,400	150,515	154,624	97	94
Mauritius	6,184	3,943	4,990	309,200	197,200	249,500	157	124
Mozambique	1,756	1,863	1,789	87,800	93,130	89,000	94	98
Reunion	2,004	1,402	1,217	100,195	70,100	60,869	143	165
Union of South Africa	8,346	7,175	7,071	417,284	358,731	353,566	116	118
Total Africa	*21,197*	*17,393*	*18,160*	*1,059 879*	*869,676*	*907,559*	*122*	*117*
Oceania.								
Australia	13,779	14,473	12,767	689,000	723,700	638,347	95	108
Hawaii	19,621	19,048	19,963	980,000	952,000	998,160	103	98
Fiji Is	2,778	2,491	2,264	139,000	125,000	113,183	112	123
Total Oceania	*36,178*	*36,012*	*34,994*	*1,808,000*	*1,800,700*	*1,749,690*	*100*	*103*
Totals	**393,124**	**354,819**	**374,672**	**19,654,186**	**17,740,868**	**18,733,271**	**111**	**105**

1) Approximate data. — 2) Production of *gur* — 3) Production of sugar (refined and raw) and molasses — 4) Production of sugar and *panocha*

U S S R The adverse conditions of the spring and the serious insect damage necessitated much resowing of the beet fields

19 8 per cent of the area in Ukraina was resown and 24 7 per cent in Voroneje June was on the whole a favourable month for crops and, in most cases, the resowings grew well.

Barbados: The persistent drought which, after a short break on 14 April and a few following days, had continued, was newly broken on 21 May, when there was good rainfall. Grinding of the 1936 cane crop was expected to be completed by the end of May. It was reported that, owing to the drought, the output, including molasses in terms of sugar, would not reach the figure previously anticipated. (See Table for the new estimate).

Canada: According to the most recent estimate, the area of sugar beet grown for sugar in 1935 was 51,985 acres against 38,495 in 1934 and 41,010 on the average of the five years ending 1933; percentages, 135.0 and 126.8. The corresponding production is estimated at about 9,184,460 centals (459,223 short tons) against 8,253,440 (412,672) and 8,068,380 (403,419); percentages, 111.3 ard 113 8.

The production of raw beet sugar in 1935-36 was 1,362,000 centals (68,100 short tons) against 1,295,500 (64,770) in 1934-35 and 1,214,900 (60,750) on the average of the five years ending 1933-34; percentages, 105.1 and 112.1.

United States: The first official estimate of the sugar beet crop places production at 176,380,000 centals (8,819,000 short tons) as compared with 158,160,000 centals (7,908,000 short tons) in 1935 and an average of 178,732,000 centals (8,936,600 short tons) in the five years 1930 to 1934; percentages, 111.5 and 98.7.

British Guiana: During May rains continued to be very heavy, considerably benefiting the autumn crop. By the end of the month grinding of the spring crop was finished and production was estimated at about 1,904,000 centals (95,000 short tons) as compared with 1,774,000 (88,700) last year. Percentage; 107.3.

Jamaica· Seasonal rains in May benefited the cane crop. Rainfall on 28 and 29 May was so heavy that some flooding ensued.

Trinidad: Weather conditions in May continued to be favourable for reaping operations.

Taiwan· The cane crops planted since last summer are growing in normal conditions

Indo-China: Condition at the end of April in Tonkin was normal.

Harvesting in Annam was finished. The yield of sugar was average.

Mauritius. In May weather conditions improved. The 1936-37 sugar crop was forecasted at 5,500,000 centals (275,000 short tons) as compared with 6,184,000 (309,200) last season and 4,729,000 (236,000) on the average of the years 1930-31 to 1934-35. Percentages: 89.1 and 116.5.

Union of South Africa: The May sugar cane crop condition averaged 8 % below. normal. Heavy rains fell during the month throughout the sugar belt.

VINES

Germany: The warm weather of the second half of June was distinctly favourable for vines and crop condition on 1 July was better than in the previous month. There are prospects of a good crop.

The condition of vines on 1 July was 2.0 against 2.2 on 1 June 1936 and on 1 July 1935.

Austria: At the end of June flowering had occurred everywhere in good conditions. Crop condition was 1.8 on 1 July as at 1 June of this year, against 2.0 on 1 July 1935.

Bulgaria: The frequent rains of May and the first decade of June resulted in an appearance of mildew. The situation at the beginning of July, however, was fairly satisfactory.

Spain: The latest estimates are less optimistic. Mildew has caused loss in some areas while in others growth is late or vines are suffering from excessive moisture.

France: The period between 15 June and 15 July was characterized by alternations of wet and cool weather and great heat, sometimes accompanied by storms. There was a development of cryptogamic disease, mildew in particular, and insects were observed in several areas. Up to the present, however, damage, though appreciable, is not very serious. Shedding was heavy in the south and south-west. The rise in temperatures which occurred at the end of June led to a recovery of growth which had previously been delayed by the adverse conditions. There was still a prospect of an average or slightly larger than average crop in the middle of July.

Greece: Despite the wet weather and the spread of *Peronospora*, the damage suffered by vines in May and early in June is not serious.

Hungary: The very warm and sunny weather was of great benefit to vines. Flowering was uneven owing to the bad weather and had not finished by 23 June. No estimates of production can therefore be made.

Mildew is reported in all parts but, owing to the dry weather, there is no danger of considerable damage.

Italy: The weather conditions are very favourable for vines. In many areas, shedding and mildew have reduced the crop prospects which previously seemed very promising verywhere. The outlook is still fairly good on the whole.

Luxemburg: The vines flowered in good conditions. There were reports of cochylis in some places.

The condition of vines on 1 July, in the system of the country, was 2.4 compared with 2.6 on 1 June and 2.7 on 1 July 1935.

Czechoslovakia· Vines, which have flowered or are in the flowering stage, are in good condition and promise a good crop of grapes.

Algeria: The wet and stormy weather which prevailed up to the middle of June resulted in a spread of cryptogamic disease. The loss in Oran was estimated at the beginning of July to be 50 per cent of the crop in the north and 25 per cent in the south where the disease appears to have been checked. It is reported in all parts of Alger but hitherto the damage has been slight. In Constantine the disease is confined to the leaves and has not caused much damage. Oïdium has also developed, especially in Oran. Owing to the additional loss resulting from shedding and the mediocre quantity of clusters, the present outlook promises a crop one fifth smaller than that of last year.

French Morocco: The rainy season ended early in June though some local hail and storms were still reported. The latter, however, caused no appreciable damage. The second half of June was fine and appreciably warmer but mists and dew were observed in most places. The wet and rather cool weather of May and the first half of June caused the spread of cryptogamic parasites, mildew and oidium, which, except in the south, caused serious losses. Vineyards in the coastal areas of Casablanca and Rabat and those in Meknès and Fez, which are among the most important were severely affected in both clusters and leaves. Losses amounting to 60 and 80 per cent. of the expected yields were reported in these areas. Owing to mildew the crop of the native vines in Zerhun are a total loss.

OLIVES

Spain: The situation worsened in June. In Andalusia and Levante the fruiting did not compare with the abundant flowering. A rather good crop is expected in Castile. In Aragon, Catalonia and the Balearic Islands the situation varies from average to good.

Italy: Olive trees are everywhere in good condition. Fruiting showed good results. There were complaints of insect attackes and, in some places, of shedding resulting from the drought.

Algeria: The trees were generally in satisfactory condition at the end of July. Fruiting was poor in Constantine but shedding was not as serious as the excessive rain threatened to make it. Shedding was normal in the chief olive area of Alger but more serious in other parts. Prospects in Oran are not as good as last year.

French Morocco: The wet and rather cool weather of May and the first half of June was unfavourable for olive trees, and severe shedding occurred in most regions. Cryptogamic disease and insects have spread seriously and the resultant damage was serious in all parts The second half of June was warmer and fine.

FLAX

Austria: The flax crops have developed unusually well but weeds are plentiful.

Belgium: The flax crop suffered during June owing to drought and, in some places, to heavy rains.

France The flax crops benefited from the rise in temperatures and the rather plentiful rainfall experienced between mid-June and mid-July. There were instances of lodging but the general condition of the crop appeared to be satisfactory in the middle of July.

Hungary: On 23 June the flax crops grown for fibre were tall and thick and those grown for seed promised a good yield. The production of fibre from the crop grown mainly for fibre is estimated at 36,000 centals compared with 27,000 centals in 1935 and 27,000 in 1934 (133.0 % and 135 5 %). The production of flax grown mainly for linseed is estimated at 111,400 centals (199,000 bushels) compared with 163,800 centals (292,500 bushels) in 1935 and 140,800 centals (251,500 bushels) in 1934 (68.0 % and 79.1 %).

Latvia: The condition of the flax crops was reported to be average by 52.2 % of the correspondents, above average by 19.0 % and below average by 28.8 %. The drought has been a particularly adverse influence.

Netherlands: The condition of the flax crops varies from district to district. In the country as a whole it is fairly satisfactory. According to the estimates, the white flowered variety occupies about 83 per cent of the area in Groningen, practically all in Friesland 90 per cent in the islands of South Holland and 95 per cent in the other Provinces (North Holland, Zeeland and the east of North Brabant).

Czechoslovakia: Flax is growing well.

United States: The production of linseed in 1936, according to the July estimates, will be about 5,302,000 centals (9,468,000 bushels) against 7,909,000 centals (14,123,000

Area and Crop Condition of Flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1-VII-1936			1-VI-1936			1-VI-1935		
	1,000 acres			1935 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	100	55	18	182.3	565.9	—	—	—	—	—	—	—	—	—
Austria	...	5	6	...	...	2.4	—	—	2.0	—	—	2.5	—	—
Belgium	65	47	35	139.2	185.0	—	f)	—	e)	—	—	—	—	—
Bulgaria	12	6	1	215.1	836.1	—	—	—	—	—	—	—	—	—
Finland 1)	12	12	10	100.9	121.4	—	—	—	—	—	—	—	—	—
Lithuania . . . 1)	...	194	156	...	...	—	100	—	—	—	—	110	—	—
Netherlands . .	32	23	17	139.4	188.8	66	—	—	—	—	—	71	—	—
Poland	...	305	253	...	...	—	2) 3.0	—	—	—	—	2) 3.2	—	—
Czechoslovakia . .	36	33	22	109.9	162.7	—	—	—	—	—	—	—	—	—
—														
Canada	237	214	432	110.5	54.8	—	—	83	—	—	—	—	—	95
United States . . .	1,698	2,014	2,107	84.3	80.6	—	—	55.8	—	—	—	—	—	77.2
—														
India	3,402	3,410	3,118	99.8	109.1	—	—	—	—	—	—	—	—	—
—														
Egypt	6	5	3	124.7	182.8	—	—	—	—	—	—	—	—	—

†) For an explanation of the signs and of the figures of crop condition, see the note on page 457 and the cereals table. — 1) Flax and hemp — 2) At the middle of the preceding month

bushels) in 1935 and an average of 6,440,000 centals (11,501,000 bushels) in the five years ending 1934; percentages, 76.0 and 82.3.

Egypt: Production of flax fibre is now estimated at 41,200 centals compared with 29,300 in 1935 and an average of 20,800 during the five preceding years; percentages: 140.7 and 197.9. Corresponding figures for linseed are respectively the following: 43,000 centals (76,800 bushels); 36,100 (64,500); 24,700 (44,200); percentages: 119.2 and 173.9.

COTTON

Bulgaria: According to the most recent estimate, the area under cotton this year is about 121,400 acres against 89,400 in 1935 and 29,200 on the average of the five years ending 1934; percentages: 135,7 and 415.8.

Greece: The cotton crop looked promising at the beginning of June, provided there were no unforeseen developments. Up to this time damage was not considerable.

Italy: Cotton was in fairly good condition at the end of June.

U. S. S. R.: The drought in Central Asia continues but the crop is making good progress. In Uzbekistan, Turkmenia and Tajikistan cotton was flowering at the end of June.

In the new cotton regions, the crop is 10 days in advance of last season.

United States (Report of 17 June): During the week, temperatures in the cotton belt averaged slightly above normal, and there were moderate to substantial showers in many places from Alabama Eastward and North-Eastward, while from the Mississippi Valley States westward the week was nearly rainless. In Texas there has been a further general improvement and the crop condition was mostly good, with cultivation advancing favourably. Reports from Oklahoma, Arkansas, and Louisiana indicated that the crop condition was satisfactory.

(Report of 24 June): Except for the North-east the past week was warmer than normal, with abnormally high temperatures prevailing in the North-west. Local showers were fairly general in most sections of the Eastern Belt, especially in the Atlantic area, where some places were then getting too much rain. In the Western Belt the week was generally dry. In Texas the condition generally was good except locally in the South, and plants are putting on squares and blooming well in the northern portion of the State, but rain was desirable in many places. In Oklahoma progress was still mostly good, but rain was beginning to be needed, with some local blooming occurring in the South-east. In the Mississippi Valley States progress was mostly fair to good except for some hill sections in Arkansas and in Tennessee, where it was rather poor. In the Eastern Belt the general situation improved materially ofter the rains, but there were complaints of too much moisture favouring weevil activity in a good many places where rains had been frequent, and there were still many unsatisfactory stands.

(Report of 1 July): During the week temperatures averaged near normal except that it was decidedly cooler in the North-East until near the week-end. Substantial to heavy rains occurred in South-Western Texas and showers in the Eastern portion of the belt. Otherwise there was little or no precipitation. In general cotton in parts of Texas not receiving rain was withstanding the drought very well, but moisture was urgently needed in all sections except in the South-West, where there was more or less storm damage. Plants are squaring and blooming well to the North except in the extreme North-West. In Oklahoma progress was only fair. The general condition was fair to good, but the crop needesed rain. Bolls were showing locally. In the Mississippi Valley States, conditions varied considerably, but growth was mostly satisfactory in lowland districts, but owing to continued dryness progress was poor to only fair in many places. Rain was needeed in Tennessee and Alabama, but in Georgia conditions generally improved, especially in the Northern half, though there were many poor stands there. In Southern Georgia stands were more uniform. In the Carolinas much of the week was too cool for good growth, but higher temperatures prevailed in the latter part. Cotton continues late, and some intended acreage was being planted with other crops.

(Report of 7 July): On the average temperatures in the cotton belt during the previous week ranged from fairly high in the Eastern belt to moderately low for the season in much of the West. Rainfall was mostly heavy except in South-Eastern sections and the North-Western portion of the belt. In Texas nearly all cotton sections received moderate to heavy rains. Growth was rather slow, but on the whole the crop had withstood the previous drought very well and the general condition continued mostly fair to good. There was considerable local flood damage. In Oklahoma while there was but little relief from the dryness, plants ware standing the drought well and the general condition was still mostly good. There is considerable blooming in the South-Fields are clean, but grasshoppers are causing damage in some sections. In the Central States of the belt the week's rains were in general decidedly favourable and progress was mostly very good to excellent. Most of Georgia still needed rain, and cotton made only fair growth in the North, while more or less deterioration was reported from Southern and Central portions of the State. In the Carolinas progress and condition were fair to good, though plants were small. There were complaints of too much rain in Eastern North Carolina. The first bale in Arizona was ginned on 3 July.

The acreage of cotton in cultivation on 1 July was estimated by the Government to be 30,621,000 acres, compared with 27,888,000 acres in 1935 and an average of 37,545,000 acres during the five preceding years ending 1934; percentages, 109.8 and 81.6. Increases are shown by all States, except Florida. Texas reports an increase of 12 % over last year, and Arkansas 14 %. The greatest proportional increases are in irrigated areas of the far west, California showing an increase of 68 %, Arizona 24 % and New Mexico 18 %.

Indo-China: Condition in North Annam at the end of April was satisfactory, but unsatisfactory in other areas owing to drought. Production in Cambodia was very good.

Egypt: During the first half of June, the weather was mild and on certain days the temperature favoured growth Water for irrigation was amply adequate. The egg-masses of *Prodenia litura* (cotton leaf worm) were widespread in most districts, in greater numbers and earlier than last year, but, owing to active control, no hatching took place except in a few areas where it was easy to destroy the worms as soon as they appeared. The crop was considered quite safe from the ravages of this pest.

The young trees resumed their active growth, as the weather improved after being quite unfavourable in May The bolls increased in number in the early and general cultivations in Upper Egypt Flowering and formation of bolls became general in the south of Delta In the northern districts the plants were still in the stages of growing, branching and budding Manuring was in active progress in the late cultivations, and some of the general ones.

During the second half of June, the weather was temperate on some days, hot on others, but in general favourable to growth Water was amply adequate. The egg-masses of the *Prodenia litura* continued to prevail The attack was general in the Delta, and in Middle Egypt, to a much smaller extent, in the other provinces. The egg-masses reached their maximum toward the middle of June, and then began to decrease gradually. This stage is about to disappear except in the northern districts of the Delta. The crop condition is generally satisfactory. An attack of grasshoppers developped in restricted areas in the northern districts, and it was being controlled by poison bait.

Vegetative growth was fully attained in some of the early cultivations of the south of the Delta and Upper Egypt, in almost all of which the bolls attained full size, climatic conditions having been favourable In the northern Delta the plant was in the growth, buds and flower stages. Hoeing was still progressing in the late cultivations

The crop is generally eight days in advance of last year.

According to the acreage estimate published by the Government on 15 July, based on the annual census taken by the Survey Department, the area planted with cotton this year is 1,781,100 acres, compared with 1,732,500 acres last year, and an average of 1,742,900 acres during the five years ending with 1934; percentages. 102.8 and 102.2. In comparison with last year, most of the increase has taken place in Upper Egypt, in the basins districts, owing to the increased quantity of water available for irrigation, specially in Assint and Girga provinces. In the Middle Egypt the area has lightly decreased, and in the Delta, especially in the northern districts, only a slight increase is noticed

Nigeria. By the end of May in the North practically all the cotton crop had been marketed, the total available for export being estimated at about 200,000 centals (42,000 bales of 478 lb.). This is much less than was expected early in the season and is due to the excessive rainfall. The same occurred in the South where in the Ibadan area the crop was reported to be 25 % below earlier estimates.

Nyasaland: It was estimated in May that this year's production of ginned cotton would exceed 120,000 centals (25,000 bales of 478 lb.).

Uganda: 1935-36 CROP. — According to the most recent estimate, the 1935-36 production of ginned cotton amounted to 1,272,000 centals (266,100 bales of 478 lb.) as compared with 980,000 (205,000) in 1934-35 and 885,000 (185,000) on the average of the preceding five seasons. Percentages: 129.8 and 143.8.

1936-37 CROP. — Eastern Province: During May in Teso district weather conditions were dry for part of the month The average planted in that district to the end of May was 29,533 which shews a large increase above the corresponding figure of 15,007 for last season. Preparation of land was general in Busoga and a little cotton had been planted. Weather conditions were favourable in Bugwere, Budama and Bugishu and germination was satisfactory 7,042 acres were planted in Bugwere, which shews a large increase compared with the corresponding figure of 1,004 for last season, 1,567 acres were planted in Bugishu to the end of May.

Northern Province· Rainfall in Lango district was below average and planting was impeded. Clearing of land was well advanced and 984 acres were planted at the end of the mouth. 1,722 acres were planted in Bunyoro and planting conditions had become favourable. Preparation for planting in the West Nile district had been held up owing to lack of rain. Seed distribution was practically completed and the position was satisfactory.

Buganda Province: The weather during May was dry throughout Buganda, and conditions were slightly too dry for cotton planting. More land than usual was reported as cleared for planting. A little sowing took place at the beginning of the month and the seed germinated well. It is anticipated that the June planting would be greater than usual

Tanganyika· As revised at 1 May 1936, the quantity of ginned cotton available for sale was estimated at 275,000 centals (57,600 bales of 478 lb).

It was reported in May that the cotton crop was satisfactory.

HEMP

Germany: According to the recent estimate, the area cultivated to hemp this year is about 12,800 acres against 8,980 in 1935; percentage 143 0.

Hungary: On 23 June hemp was reported to be growing well. The crops are of average height but rather thin.

Italy: The hemp crops in South Italy were good in appearance. In North Italy the situation is fairly good and is improving.

Poland: On 15 June crop condition was 3.1 against 3 5 at the same date last year.

HOPS

Great Britain and Northern Ireland: After the first week of June, when the bines were backward owing to the cold weather and the lack of sun, rapid growth was made, and at the end of the month the bines were generally healthy, vigorous and of good colour. Rather less disease and insect pests were prevalent than usual.

Hungary: Hops were reported to be growing well on 23 June.

Czechoslovakia: There is a serious infestation of green-fly among hops. Otherwise, growth is good.

United States: According to the July estimate, the area under hops this year is about 31,000 acres against 39,000 in 1935 and 26,000 on the average of the five years ending 1934; percentages, 79 5 and 119.2 The corresponding production is estimated at about 26,994,000 lb. against 47,746,000 lb. and 31,015,000 lb.; percentages: 56 5 and 87.0.

TOBACCO

Bulgaria: According to the most recent estimate, the tobacco area this year is about 65,000 acres against 85,000 in 1935 and 67,500 on the average of the five years ending 1934, percentages 76 6 and 96 3

Greece Tobacco grew satisfactorily during May and at the beginning of June.

Hungary On 23 June, tobacco was growing well. Hoeing was in progress.

Czechoslovakia The tobacco crops are growing normally
According to the most recent estimate the area cultivated to tobacco this year is about 24,800 acres against 24,700 in 1935 and 23,100 on the average of the five years ending 1934, percentages, 100 5 and 107 7

United States: The July estimate places tobacco production this year at 1,113,764,000 lb According to the revised estimates, production in 1935 was 1,296,810,000 lb while the average of the five years 1930 to 1934 was 1,336,559,000 lb, percentages, 85 9 and 83.3

Indo-China: Growth was satisfactory at the end of April in northern and central Annam but unsatisfactory in the south owing to the drought In Cambodia, production was satisfactory.

Algeria The condition of the crop is very uneven in Alger. quality will be poor In Constantine, growth, after a temporary delay owing to rain and low temperatures, recovered in the second half of June and progressed normally

OTHER PRODUCTS

Cacao.

Nigeria: It was reported in May that in the south the light crop cacao season was expected to be short, owing to the lack of early rains.

Tea.

India In North India, the weather was too wet to be altogether favourable, particularly during the latter part of May Prospects were fair
In South India the weather was warm and showery in the early part of May but later the monsoon developed and immediate prospects were not good.
In North India, production to the end of May recorded an increase of 1,076,444 lb. as compared with the outturn to the same date last year. In South India, the outturn was 3 5 % behind that to the same date last year.

Indo-China: Picking progressed normally in Tonkin. Green-fly was reported and the drought was beginning to affect growth.

Japan: During May owing to the low temperatures of the previous month, growth was generally delayed. The condition of the crop on June was poor.

Coffee.

Columbia: According to an estimate of the *Federación Nacional de Cafeteros,* the exports of Columbian coffee during the last commercial year (1 July 1935-30 June 1936) reached 496,600,000 lb. in 1934-35, 458,300,000 lb in 1933-34, 429,700,000 lb. in 1932-33 and 398,800,000 lb in 1931-32

The average consumption of the country during the years 1931-1935 was 49,600,000 lb., an increase of about 5,500,000 lb. on the average consumption of the years 1926 to 1930.

Indo-China: The growth of *Arabica* varieties was checked at the end of April by the lack of rain. The planters anticipated an average crop

Kenya: It was reported in May that picking of early coffee was to be commenced shortly but the main crop outlook was still uncertain and the realisation of earlier forecasts was considered doubtful

Tanganyika. It was reported in May that the coffee crop was satisfactory.

Groundnuts.

Indo-China: The crops were good in appearance in North Annam at the end of April.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the groundnuts area.—

	1936 acres	1935 acres
Area harvested in May	35 000	40,800
Area harvested from 1 January 31 May	181,600	176,400
Area of standing crop at the end of May . .	175,000	148,800

Tanganyika: As revised at 1 May, 1936, the quantity of groundnuts available for sale was estimated at 431,000 centals

Drier weather was reported towards the end of May in most up-country districts, but heavy rains continued on the coast.

Colza and sesame.

Germany: According to the recent estimate, the area cultivated to colza this year is about 96,400 acres against 82,900 in 1935; percentage, 116 3

Austria: The yields of colza, harvesting of which was completed everywhere, were unsatisfactory. Crop condition on 1 July was 2.4 as on 1 July 1935, compared with 1.7 on 1 June 1936.

Poland: On 15 June condition of winter colza was, according to the system of the country, 3.7 and that of spring colza 3.0 against 2.7 and 3.0 respectively at the same date last year.

Czechoslovakia: Colza is maturing well in sunny weather. Harvesting has begun in some areas. Notwithstanding some lodging, production will probably be fairly satisfactory.

Indo-China: The condition of sesame in Annam was good at the end of April.

Tanganyika: As revised at 1 May 1936, the quantity of sesame available for sale was estimated at 73,000 centals (3,670 short tons).

Sericulture.

Bulgaria: According to the most recent estimate, the quantity of silkworm eggs incubated this year was about 29,600 ounces against 24,300 in 1935 and 29,800 on the average of the five years ending 1934; percentages: 121.7 and 99.4.

Greece: The disease which appeared on mulberry leaves at the beginning of June may seriously affect the crop.

Italy. The silk year closed in fairly good conditions as disease was of slight extent. The total quantity of eggs placed in incubation in 1936 is estimated to be about 60 to 70 % greater than that of 1935 and it is expected that the quantity of cocoons produced will show a similar increase.

U S S R. By 30 June the Government had acquired 41,200,000 lb. of cocoons (87.5 % of the quantity provided for by the Plan), that is, 406,000 lb. more than the total for last year In Uzbekistan, the main silk area, the Government had secured 25,524,000 lb. by 28 June (101.1 % of the Plan) compared with 21,960,000 lb. during the whole of 1935

Indo-China: The growth of mulberries was slightly checked in April by drought in Tonkin and in Central and Southern Annam. Those in North Annam yielded plentifully in April and it was possible to make rearings on a large scale, the results were good on the whole

Japan: According to the most recent estimate, the quantity of eggs prepared for incubation for spring cocoons this year was about 2,280,000 ounces against 2,448,000 in 1935 and 2,795,000 on the average of the five years ending 1934; percentages, 93.2 and 81.6.

FODDER CROPS

Germany The warm weather of the second half of June was favourable for fodder crops.

According to the recent estimates, the area under clover this year is about 3,665,000 acres against 3,633,000 in 1935 and 4,284,000 on the average of the five years ending 1934, percentages, 100.9 and 85.5. The corresponding figures for alfalfa are: 918,000, 897,000 and 767,000 acres; percentages, 102.3 and 119.7.

The first cut of clover yielded about 141,000,000 centals (7,000,000 short tons) and that of alfalfa 37,000,000 centals (1,900,000 short tons).

The total production of clover in 1935 was 158,300,000 centals (7,900,000 short tons) and that of alfalfa 51,500,000 centals (2,600,000 short tons).

Austria: The sugar beet crops are uneven while, in some places weeds are reported. Permanent and temporary meadows showed good yields and a record yield of straw from mixed clovers was obtained. Haymaking was hindered by rain in the first half of June and the quality of the hay is unsatisfactory. Pastures afford sufficient bite for animals.

Belgium: Clover yielded a plentiful first cut, though haymaking was done in unfavourable conditions.

Spain: Fodder crops continue in excellent condition.

Irish Free State: The early part of the month was dry but harsh and cold with night frosts. The second half was sultry with occasional thunder. The rains and heat of the second half of the month stimulated the growth of grass.

Finland: The production of hay from permanent meadows in 1936 is estimated at 5,840,000 centals (292,000 short tons) as compared with 6,170,000 centals (309,000 short tons) in 1935 and with an average of 7,500,000 centals (375,000 short tons) in the five years 1930-34; percentages, 94.6, and 77.9 The corresponding figures for hay from temporary meadows are 75,840,000 centals (3,792,000 short tons), 74,630,000 centals (3,731,000 short tons) and 63,050,000 centals (3,152,000 short tons) respectively; percentages, 101.6 and 120.3.

France: After the middle of July the growth of fodder roots was assisted by the rise in temperature and the rain. The sowing of swedes was also facilitated by these conditions. The persistent rain, however, impeded flowering and the bringing in of fodders in many places. Quantity and quality were affected. The growth of grass in meadows and pastures was rather irregular

Great Britain and Northern Ireland: Grass made little growth during May in England and Wales and it was apparent that mowing would be later than usual. The June rains caused rapid growth but cutting was delayed as long as possible in order to secure a heavier crop. Weather conditions in many areas have hindered operations and harvesting was protracted. The hay yields will be rather below average. Mangels are almost everywhere a healthy and promising plant. Early sown turnips in many districts were damaged by fly and the adverse weather conditions and resowing was necessary; with the rain and warmer weather the crop, where established, made good progress and was generally reported at the end of the month to be looking well.

In Scotland, the hay crop suffered considerably from the lack of moisture and the yield is expected to be the lowest for several years. At the end of June mangels were in average condition and turnips and swedes somewhat below it. The early sown turnips made good progress during June but the brairds of later sowings were irregular, resowing was necessary in several districts and at the end of the month plants were badly in need of rain; some damage by fly was reported but there was little evidence of disease.

Hungary: Mangels were growing well on 23 June. The first clover cut is saved. A good second cut of alfalfa and clover is anticipated. The first cut in permanent meadows is also finished. Yields were generally above average. Pastures were becoming dried up in hilly districts and on sandy soils. In the greater part of the country however, they afford sufficient bite for stock.

Italy: Fodder crops are in good condition on the whole. Meadows and pastures are yielding well.

Latvia: The persistent drought and the unusual heat of June reduced the estimates of the hay and clover crops which, however, promise to be larger than those of last year. The quality of grass in temporary meadows is good. The crop conditions of

The condition of Fodder Crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 July 1936			1 June 1936			1 July 1935		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
CLOVER:									
Germany	2.3	—	—	2.3	—	—	2.9	—	—
Austria 1)	1.8	—	—	1.7	—	—	2.4	—	—
Estonia	108	—	—	—	—	—	—	—	99
Italy	e)	—	—	—	—	—	—	—	g)
Netherlands:									
red clover	2) 68	—	—	—	—	—	—	—	2) 63
white clover	2) 73	—	—	—	—	—	2) 67	—	—
Poland	—	—	2) 3.3	—	—	2) 3.3	—	—	2) 2.9
Canada 3)	—	—	99	—	—	98	—	—	98
Egypt (bersim)	101	—	—	101	—	—	—	—	89
ALFALFA:									
Germany	2.2	—	—	2.2	—	—	2.4	—	—
Austria	1.7	—	—	1.5	—	—	2.1	—	—
Italy	e)	—	—	—	—	—	—	—	g)
Scotland	—	—	—	—	—	—	—	—	—
Canada	—	—	94	—	—	95	103	—	—
MANGELS:									
Germany	2.7	—	—	2.8	—	—	2.8	—	—
Austria	2.4	—	—	2.3	—	—	2.6	—	—
Scotland	—	100	—	—	—	—	—	100	—
Italy	e)	—	—	—	—	—	—	—	g)
Norway 4)	—	—	90	—	—	—	—	—	96
Canada 4)	82	—	—	81	—	—	80	—	—
Switzerland	—	—	94	—	—	—	—	—	95
TEMPORARY MEADOWS:									
Austria 5)	1.6	—	—	1 5	—	—	2.1	—	—
Denmark.									
Islands	109	—	—	—	—	—	—	—	96
Jutland	—	—	93	—	—	—	—	—	84
Scotland	—	—	80	—	—	—	—	—	—
Norway	—	—	86	—	—	—	—	—	96
Switzerland	87	—	—	84	—	—	88	—	—
PERMANENT MEADOWS:									
Germany:									
irrigated meadows	2.2	—	—	2.3	—	—	2.4	—	—
other meadows	2.4	—	—	2.4	—	—	2.7	—	—
Austria	1.7	—	—	1.7	—	—	2.1	—	—
Denmark:									
Islands	—	—	99	—	—	—	—	—	97
Iutland	—	—	93	—	—	—	—	—	92
Scotland	—	—	85	—	—	—	—	—	—
Estonia	133	—	—	—	—	—	113	—	—
Italy	e)	—	—	—	—	—	—	—	g)
Norway	—	—	81	—	—	—	—	—	98
Netherlands 6)	2) 68	—	—	—	—	—	—	—	2) 63
Poland:									
ordinary meadows	—	—	2) 2.6	—	—	2) 2.5	—	—	2) 2.9
low meadows	—	—	2) 2.9	—	—	2) 2,8	2) 3.1	—	—
meadows improved	2) 3.5	—	—	2) 3.3	—	—	2) 3,2	—	—
Switzerland	87	—	—	82	—	—	87	—	—
PASTURES:									
Germany	2.7	—	—	2.4	—	—	—	—	—
Austria	2.3	—	—	2 1	—	—	2.4	—	—
Denmark:									
Islands	—	—	82	—	—	—	—	100	—
Jutland	—	—	74	—	—	—	—	—	99
Italy	e)	—	—		—	—	—	—	g)
Netherlands	2) 68	—	—	—	—	—	—	—	2) 64
Poland:									
permanent pastures	—	—	2) 2.6	—	—	2) 2.5	—	—	2) 2.8
temporary pastures	—	2) 3.0	—	—	2) 3.0	—	—	2) 3.0	—
Switzerland	78	—	—	85	—	—	82	—	—
Canada	—	100	—	101	—	—	103	—	—

a) Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good. — f) Average. — g) Bad. — †) See explanation of the various systems on page 457. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Clover and hay. — 4) Turnips. — 5) Kleegrass. — 6) Meadows for hay.

annual clover on 15 June was average in 32.9 % of the crop reports, above average in 540% and below average in 12.4 %. Corresponding figures for biennial clover were 46.9 %, 28.4 % and 24.7 % and for permanent meadows 48.8 %, 36.6 % and 24.6 %.

Netherlands: There were no complaints as to the growth of grass in the middle of June although the dry and cold weather of the first half of June had checked growth.

The following are the most recent estimates of area under fodder crops compared with those of the past year and the average.

	1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
	(thousand acres)				
Temporary meadows	48.7	52.7	49.2	92 5	99.1
Clover	57 3	60.7	74.0	94.3	77.4
Mangels	115.9	116.5	109.2	99.5	106.2
Kohlrabi and turnips	19.9	23 0	28.5	86.6	70.0
Other fodder plants	18.6	18 7	15.6	99.6	119.7

Poland: The condition of meadows and pastures in central and western areas improved between 15 May and 15 June, but in the southern provinces it was below average, the rains of the first half of June having brought no betterment.

Czechoslovakia: The hay harvest this year was generally very plentiful. The first cut of clover, alfalfa and meadow hay was impeded in most cases by the wet weather but its quality was good, though not in all areas. The second clover cut has already begun and also promised good yields. The aftermath is growing well. In some areas, the fodder crops require more rain.

Argentina (telegram of 17 July): Pastures are in good condition.

Canada: Condition figures of fodder crops, most of which lie outside the western drought area, were well maintained during June but in most cases they were not as high as in June 1935. Pastures, at 100, were one point lower than at the end of May and 3 points below the level of last year.

The early part of July was unfavourable for all crops except in the Maritime Provinces and British Columbia. Feed shortages are expected in the Prairies.

The first estimates of the area under certain fodder crops are given below together with the figures of last year and the five-year averages.

	1936	1935	Average 1930-1934	% 1936 1935 = 100	% 1936 Average = 100
	(thousand acres)				
Hay and clover (1)	8,737	8,698	9,260	100.5	94.3
Alfalfa	779	762	676	102.2	115.3
Fodder maize	463	481	401	96.3	115.6
Turnips, etc.	183	185	183	98.8	100.0

1) Seeded meadow only.

Algeria: As a result of the bad weather which predominated up to the middle of June, the quality of the hay harvest is mediocre, particularly that of temporary meadows in Oran and Alger. Alexandra clover and alfalfa yielded well. Aftermath is plentiful in Alger and pastures are generally well supplied.

French Morocco: The wet and cool weather which prevailed until the middle of June was favourable to the fodder crops, grass and grazings. Grass was plentiful everywhere but hay making and ensilage were often impeded and the quality in many cases was seriously affected by the excessive moisture. In a few places the fodder crops rotted. Weather in the second half of June was fine and markedly warmer but mists and dew still occurred nearly everywhere. Grass, however, was beginning to look parched

Union of South Africa During May the south-western districts of the Cape Province experienced exceptionally cold weather with very little rain except in the coastal area, veld and stock were in poor condition In the north-west the weather was dry and cool with light rains in some parts, the veld was dry but there was still a fair amount of grazing and stock were in fair condition, prospects were moderately good Rainfall in other parts of the Cape Province was fairly satisfactory and animals were reported to be generally in fair condition

The weather was generally cold in the highveld area of Natal and towards the end of the month there were copious rains, many lambs died as a result of the cold weather and most of the winter feed was damaged by continuous rains. In the middle-veld districts weather was mild early in the month but wet and cold later, stock and veld were in excellent condition

Conditions were cold in many parts of the Orange Free State and there were some losses among stock in the north-east owing to rain and cold. Elsewhere stock were doing fairly well.

Conditions in the Transvaal during May were changeable and unusually wet

SUPPLEMENTARY FIGURES

France: The final estimates of cereal production in 1935 are as follows:

	1935	1934	Average 1929-33	% 1935 1934 = 100	% 1935 Average = 100
	Area in thousand acres.				
Wheat	13,252	13,354	13,278	99.2	99.8
Meslin	179	184	198	97.6	90.7
Rye	1,668	1,694	1,776	98.5	93.9
Barley	1,787	1,810	1,834	98.7	97.5
Oats	8,101	8,210	8,444	98.7	95.9
Buckwheat	717	759	787	94.4	91.1
Total	*25,704*	*26,011*	*26,317*	*98.8*	*97.7*
	Production in thousand centals.				
Wheat	170,973	203,110	183,042	84.2	93.4
Meslin	2,032	1,808	2,172	112.4	93.5
Rye	16,448	18,471	18,322	89.0	89.8
Barley	22.621	22,797	24,221	99.2	93.4
Oats	98.228	96.660	108.686	101.6	90.4
Buckwheat	6.258	7.243	7.665	86.4	81.6
	Production in thousand bushels.				
Wheat	284,949	338,511	305,064	84.2	93.4
Meslin	3,503	3,117	3,745	112.4	93.5
Rye	29,372	32,984	32,718	89.0	89.8
Barley	47,127	47,496	50,461	99.2	93.4
Oats	306.960	302.060	339.642	101.6	90.4

Compared with the preliminary estimates the figures show an increase of 3,712,600 centals (6,187,500 bushels) in wheat (2.2 %), a decrease of 1,014,100 centals (2,112,800 bushels) in barley (4.5 %) and a decrease of 3,368,700 centals (10,527,000 bushels) in oats (3.3 %).

Italy: Below are shown the estimates of area and production in 1935 which have just been issued by the Italian Government. The statistics of wheat, rye, barley and oats appeared in earlier issues of the *Crop Report.*

CROPS		AREA					PRODUCTION				
		1935	1934	Average 1929 to 1933	% 1935		1935	1934	Average 1929 to 1933	% 1935	
					1934 = 100	Average = 100				1934 = 100	Average = 100
		thousand acres					thousand centals				
Maize		3,643	3,655	3,606	99.7	101.0	55,551	70,388	57,625	78.9	96.4
Rice		338	323	345	104.6	98.0	13,977	13,602	14,701	102.8	95.1
Potatoes		1,004	1,001	953	100.3	105.4	47,600	59,672	49,107	79.8	96.9
Sugar beet		227	224	252	101.6	90.0	51,252	58,466	57,694	87.7	88.8
Vines	a)	2,409	2,446	2,216	98.5	108.7	c) 1,596,668	1,067,392	1,344,446	149.6	118.8
							Thousand Imperial gallons				
	b)	7,259	7,282	7,828	99.7	92.7	d) 1,065,981	672,008	845,416	158.6	126.1
							Thousand centals				
Olives	a)	2,080	2,002	1,781	103.9	116.8	e) 28,001	29,505	28,156	94.9	99.5
	b)	3,045	3,152	3,543	96.6	85.9	f) 5,002	4,782	4,472	104.6	111.8
Linseed		10	11	18	92.1	54.4	49	46	99	107.4	49.6
Hemp (fibre)		166	156	166	106.5	100.3	1,421	1,333	1,538	106.6	92.4

a) Crop grown alone. — *b)* Mixed Crop — *c)* Production of wine grapes. — *d)* Production of wine. — *e)* Production of olives. — *f)* Production of oil

LIVE STOCK AND DERIVATIVES

The pig crop in Germany.

The results of the latest enumeration of pigs conducted on 4 June 1936 are set out below together with the figures for the same periods in the five preceding years.

Clessification	4 June 1936	4 June 1935 1)	4 June 1934 1)	7 June 1933 1)	1 June 1932 1)	1 June 1931 1)
Sucking pigs under 8 weeks old	*5,392,521*	*4,555,688*	*5,282,943*	*5,139,421*	*5,500,939*	*6,027,347*
Young pigs from 8 weeks to 6 months old	*10,429,748*	*9,523,130*	*10,435,801*	*9,752,264*	*9,831,953*	*10,350,781*
Pigs from 6 months to 1 year old	*4,640,573*	*4,258,784*	*4,787,126*	*4,449,499*	*4,108,788*	*4,172,046*
of which						
Boars for service	47,605	46,094	44,404	45,651	45,779	54,287
Sows for breeding (total)	653,581	554,007	547,156	652,482	607,557	692,805
Sows covered	(426,519)	(355,335)	(338,291)	(421,693)	(374,337)	(408,951)
Other swine	3,939,387	3,658,683	4,195,566	3,751,366	3,455,452	3,424,954
Pigs 1 year old and over	*1,828,430*	*1,703,913*	*1,861,780*	*1,832,550*	*1,847,138*	*1,979,151*
of which·						
Boars for service	63,164	65,563	70,938	72,372	73,202	70,842
Sows for breeding (total)	1,528,662	1,360,937	1,518,991	1,511,162	1,534,262	1,662,653
Sows covered	(961,586)	(866,408)	(948,505)	(977,904)	(937,634)	(1,021,436)
Other swine	236 604	277,413	271,851	249,016	239,674	245,656
Total	**22,291,272**	**20,041,515**	**22,367,650**	**21,173,734**	**21,288,818**	**22,529,325**

1) Excluding the Saar territory

Sheep numbers in Germany.

The following table contains the results of an enumeration of sheep conducted in Germany (including the Saar) on 4 June 1936 compared with the corresponding figures of last year.

Classification	4 June 1936	4 June 1935 (1)
Sheep under 1 year	*2,015,360*	*1,787,189*
Males	927,181	...
Females	1,088,179	...
Sheep 1 year old and over	*2,981,161*	*2,753,089*
Rams	60,436	...
Wethers	377,994	...
Lambing ewes	428,785	..
Other ewes	2,111,087	...
TOTAL	*5,996,521*	*4,540,278*

1] Excluding the Saar Territory.

Pig population in Denmark.

(Thousands)

Classification	1936				1935							
	13 June	2 May	21 Mar.	8 Feb.	28 Dec.	16 Nov	5 Oct.	24 Aug.	13 July	25 May	13 April	1st Mar.
Boars for breeding.	24	23	22	21	21	21	21	21	20	20	20	20
Sows in farrow for first time . . .	125	126	117	95	97	97	86	75	83	83	87	89
Other sows in farrow	189	182	172	175	181	181	178	184	188	172	154	166
Sows in milk . . .	99	93	100	96	90	89	98	90	78	88	98	81
Sows not yet covered (and not for slaughter)	27	25	25	23	21	26	29	25	24	25	22	19
Sows for slaughter.	15	14	15	18	16	17	14	9	10	12	12	14
Total of sows . . .	*455*	*440*	*429*	*407*	*405*	*410*	*405*	*383*	*383*	*380*	*373*	*369*
Sucking pigs not weaned	810	768	819	779	732	766	860	782	673	724	813	695
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg . .	826	852	826	816	885	882	792	742	772	797	740	738
Pigs of 35 and under 60 kg. .	700	686	700	722	723	674	683	693	733	635	629	637
Fat pigs of 60 kg. and over .	559	562	558	518	450	565	534	545	453	500	463	508
Total pigs . . .	*3,374*	*3,331*	*3,354*	*3,263*	*3,216*	*3,318*	*3,295*	*3,166*	*3,034*	*3,056*	*3,038*	*2,967*

Live stock in Switzerland.

The Federal Bureau of Statistics has issued the provisional results of the live stock census conducted on 21 April 1936.

Cattle.

Classification	1936	1935	1934	1933	1931
Calves not over 6 months:					
for slaughter	58,036	64,843	69,875	61.879	57,032
for rearing	199,810	178,466	187,138	184,512	225,493
Young cattle from 6 months to 1 year	95,807	97,075	101,215	111,226	108,277
Heifers:					
from 1 to 2 years	183,048	187,451	200,021	215,389	188,641
over 2 years	105,780	111,456	126,775	127,722	103,114
Cows	879,856	903,153	919,804	912,766	868,516
Bulls:					
from 1 to 2 years	21,618	23,895	21,050	26,429	28,901
over 2 years	7,331	8,052	8,644	10,998	7,610
Oxen:					
from 1 to 2 years	9,682	7,744	11,949	19,224	12,331
over 2 years	6,007	7,905	12,216	13,787	9,495
TOTAL . . .	1,566,975	1,590,040	1,658,687	1,683,932	1,609,410

Cattle. — Total cattle numbers show a decline of only 23,000 or 1.5 per cent. Compared with the record numbers registered in 1933, cattle were 117,000 fewer in 1936. The smaller decline which occurred between 1935 and 1936 is the result of changes in the various age groups. The number of cows, the main category for both meat and milk markets, was 880,000, a decrease of 23,300, or 2.5 per cent., from 1935. Notwithstanding this reduction, there are still nearly 10,000 more cows than there were in 1931 and there is thus no question of a serious diminution in cow numbers. Last year's decline is mainly the reflection of the comparatively high meat slaughterings resulting from certain official measures introduced after 1935 and of events that occurred during the last year. (Notwithstanding the smaller numbers of cows, slaughterings in 1935 were greater than in 1934. See *Crop Report*, March 1936, p. 205). However, the decline in cow numbers is not considerable as the numbers of heifers over 2 years was very great in 1935 and large enough to replace the slaughtered cows. Fewer animals were exported last year than in 1934.

The rise that has occurred in recent months in the prices of the various categories of cattle is to be explained by the distribution among the various age groups. The low prices for meat and store animals which ruled from 1933 to the middle of 1935 caused a contraction in rearings which is now evident in the limited supply of these types. Moreover, in some regions numbers were reduced owing to the drought of 1934 and part of 1935. The suspension of the milk quotas when animals were turned out to pasture naturally induced farmers to sell fewer cows. The rise in prices was accentuated by the changes that occurred in numbers The latter coincided with a reduction in pig numbers which reduced competition considerably

* * *

Pigs. — Since the spring of 1935, the number of pigs fell by as much as 213,000, or 19.6 per cent. The numbers at present are about 50,000 below those of the 1931 Census. The unsatisfactory prices ruling up to the autumn of 1935 and the poor potato crop of that year are the main causes of this large reduction.

Pigs.
(number)

Classification	1936	1935	1934	1933	1931
Sucking pigs up to 2 months	201,883	269,429	261,876	236,890	247,012
Young pigs from 2 to 6 months	392,467	435,642	381,129	328,432	349,228
of which from 4 to 6 months	(204,795)	—	—	—	—
Pigs for fattening over 6 months	198,507	288,356	260,392	247,028	237,376
Sows:					
total	79,018	90,824	94,938	81,379	89,303
in farrow	(51,446)	(56,423)	—	—	—
Boars	3,362	4,128	4,115	3,720	3,503
TOTAL	875,237	1,088,379	1,002,450	897,449	926,422

The number of animals for breeding purposes is smaller than that of last year and suggests that there will not be a large supply of pigs for sale. The number and the use made of sows for reproduction will determine the number of pigs next spring.

Horses. — The reduction in horse numbers is greatest in the more urban cantons and next to these come the cantons of Lucerne and Grisons. In these areas a progressive mechanization is taking place in both town traffic and agriculture. The profits of haulage are thus reduced and there is a corresponding decrease in horse numbers.

Other animals, poultry and beehives.
(number)

	1936	1931
Horses	*139 493*	*140.300*
Horses under 4 years	17,111	13,583
Horses for reproduction	8,061	5,505
Draught horses	114,321	121,212
Sheep	*175,405*	*184 754*
Goats	*217,738*	*237,995*
Poultry	*5,580,639*	*4,917,856*
Fowls, turkeys and guinea fowls	5,530,162	4,864,459
including chicks under 2 months	(1,175,477)	(453,957)
Geese and ducks	50,716	53,397
Beehives	*332,479*	*300,444*

Sheeps and goats. — The number of sheep in Switzerland has again fallen (9,300, or 5.1 per cent, since 1931). The decrease in Grisons is largely due to a change of marketing season (this year, heavy sales were made at the end of the winter, not as before, in May and June). Moreover, some communes report the total slaughter of sheep owing to scab. The closing of common pastures has also resulted in a reduction in numbers. The decline in Valais is mainly the result of the vigorous application of the forestry law.

Goats are steadily declining in importance because persons with other occupations are giving up their agricultural pursuits. Goats in some cases have been replaced by cattle.

Poultry. — The number of people possessing poultry has declined considerably since 1931. This reduction is mainly the result of the fluctuations of prices in recent years (marked by an increase in the cost of corn and a fall in the price of eggs at the main laying season). Small poultry holdings for which feedingstuffs have to be purchased were consequently no longer remunerative. However, in spite of a reduction in the number of owners, there has been a considerable increase in the number of fowls of about 665,700, or 13.7 per cent, the present numbers reaching 5,530,200 birds. The increase is due entirely to the growth in the number of young chickens.

Current information on live stock and derivatives.

Estonia: Feeding conditions for animals were better than in May and had a favourable influence on milk production.

The production of milk in 1935 was 751,148,000 lb. compared with 706,784,000 lb. in 1934 and with an average of 786,488,000 lb. in the five years 1929-33; percentages, 106.3 and 95.5. The corresponding figures of the production of butter were 29,307,000 lb., 27,754,100 lb. and 31,472,400 lb. respectively, percentages, 105.6 and 93.1

Irish Free State: Supplies are adequate for normal requirements. Milk yields were backward at the beginning of the month but they recovered later.

Great Britain and Northern Ireland The shortage of grass apparent early in the month was remedied in England and Wales by the rapid growth following the advent of rain and warmer weather, and at the end of June pasture was generally plentiful. Cattle and sheep made good progress and were doing well. Milk yields were about normal for the season everywhere, but in Scotland hand feeding was necessary.

Latvia Owing to the heat, the production of milk did not increase in June but it was maintained at the level of the same period of last year.

Netherlands: Feeding conditions for milk cows were good in all provinces during June They were not as good in the second half owing to the warm weather

Milk production in Groningen, Friesland, Drenthe Overijssel, Guelder, North and South Holland and Limburg was greater than that of the same month last year. The increase, however, in no instance exceeded 5 % The yield in Zeeland declined by 5 %

Argentina (Telegram of 17 July) The health of animals is generally good.

Algeria: Live stock improved in condition in June in all parts Meat and work animals are in a good state and only sheep from the south of Constantine are inclined to the mediocre. Supplies of feed were generally adequate for July and August. Animals are in good health.

French Morocco. Stock were in satisfactory condition everywhere at the end of June. Grazings were still in good condition, notwithstanding the time of year. They were beginning to look parched but stubble was abundant, the grain crops having been abandoned in some cases, and there were ample feed resources Though surface waters and the watertable were decreasing, particularly in the south, water supplies were still sufficient. Cisterns were still full

LATEST INFORMATION

Canada (Telegram of 23 July) The drought and high temperatures persisted over the western grain belt with only slight relief from local showers. Damage has spread. Prospects are fair in Northern Manitoba, in eastern and central parts of Saskatchewan and in the northern districts of Alberta but a huge grain area is irreparably damaged. Extensive loss has been caused by hail, grasshoppers and stem rust Rain is urgently needed.

United States (Telegram of 23 July): High temperatures and the lack of rainfall continued in the interior of the United States, especially to the west of the Mississippi. The south and south-east, however, received good rains. In New England and to the west of the Continental Divide conditions continue satisfactory. The drought further reduced the spring wheat crops and caused serious but undetermined damage to maize, particularly in Illinois, Iowa, Missouri and Kansas.

TRADE

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Wheat. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	0	220	0	0	573	220	0	0	220	0
Hungary	379	675	0	0	5,060	5,937	0	0	6,526	0
Lithuania	46	55	0	0	1,243	573	0	0	584	0
Poland	146	64	0	0	1,054	485	0	9	1,274	9
Romania	...	...	...	..	1) 3,353	1) 143	1) 2	1) 4	2,538	4
Yugoslavia	0	134	0	0	2	2,434	0	2	2,500	2
U. S. S. R.	...	...	...	...	2) 16,508	2) 1,232	2) 0	2) 814	1,285	1,038
Canada	16,391	7,194	0	0	108,208	77,235	9	2	86,627	2
Argentina	2,255	9,376	—	—	34,588	92,202	—	—	105,860	—
Chile	...	...	...	...	2) 794	2) 580	2) 0	2) 55	659	410
Syria and Lebanon	86	9	0	0	154	225	7	15	278	18
Algeria	...	...	...	...	2) 4,222	2) 4,974	2) 366	2) 223	7,028	328
French Morocco	...	...	...	...	1) 2,310	1) 3,212	1) 0	1) 0	4,467	0
Tunis	26	152	9	2	2,370	1,307	139	181	2,258	185
Australia	3,468	3,933	0	0	40,856	40,268	0	0	44,924	0
New Zealand	...	..	. .	..	2) 0	2) 0	2) 168	2) 7	0	22
Importing Countries										
Germany	295	2	399	304	983	119	1,832	6,612	121	6,995
Austria	0	0	348	485	0	0	2,496	3,640	0	4,802
Belgium	79	31	2,635	1,495	871	1,570	20,741	21,636	1,742	25,450
Denmark	0	0	408	589	35	31	3,926	9,661	31	10,763
Spain	0	0	0	0	0	0	18	0	0	0
Estonia	0	0	79	0	44	93	79	0	121	0
Irish Free State	0	0	994	1,100	0	0	7,106	7,979	0	9,420
Finland	0	0	137	203	0	0	1,228	1,012	0	1,338
France	260	3,155	1,213	1,177	7,064	17,791	14,152	13,323	22,688	15,829
Gr. Brit. and N. Irel.	99	88	9,980	11,779	529	657	93,088	93,889	827	113,179
Greece	0	0	990	1,402	0	0	6,806	6,535	0	8,684
Italy	—	—	—	—	—	—	—	—	9	12,159
Latvia	0	66	0	0	877	146	0	0	659	0
Norway	0	0	348	461	0	0	2,965	3,159	0	3,907
Netherlands	0	304	994	1,008	4	428	9,370	9,720	811	11,200
Portugal	933	0	0	22	2,112	0	152	163	0	207
Sweden	172	395	75	68	1,689	1,248	869	807	1,973	902
Switzerland	0	0	549	873	2	2	7,449	8,322	2	10,750
Czechoslovakia	0	0	0	57	4	2	1,292	635	4	849
United States	20	2	1,704	1,102	132	1,312	26,028	13,724	1,356	15,540
Ceylon	—	—	7	4	—	—	88	22	—	33
China	...	...	...	...	1) 121	1) 249	1) 2,773	1) 7,015	289	10,889
India	11	4	0	0	223	240	298	101	247	101
Japan	—	—	439	1,071	—	—	7,683	9,431	—	10,878
Egypt	...	...	...	...	1) 2	1) 51	1) 2	1) 1,235	51	1,250
Union of South Afr.	...	...	...	...	2) 0	2) 2	2) 20	2) 520	2	531
Totals	**24,666**	**25,859**	**21,308**	**23,202**	**235,987**	**254,968**	**211,152**	**220,453**	**297,961**	**277,674**
	Rye. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	0	0	64	511	820	51	542	4,883	51	5,393
Bulgaria	77	0	0	0	121	0	0	0	0	0
Estonia	18	0	0	0	333	494	331	22	783	22
Hungary	9	60	0	0	146	705	0	0	728	0
Latvia	227	13	0	0	1,640	1,909	0	0	1,929	0
Lithuania	104	82	0	0	1,834	1,184	0	0	1,199	0
Poland	335	1,027	0	0	4,248	10,117	0	0	11,665	0
Romania	...	...	...	...	1) 304	1) 0	1) 0	1) 0	0	0
Sweden	57	93	0	2	844	1,847	18	20	2,000	22
U. S. S. R.	...	...	—	—	2) 1,113	2) 347	—	—	624	—
Canada	553	9	0	0	655	403	0	11	666	11
Argentina	461	227	—	—	1,885	5,289	—	—	5,950	—
Algeria	...	...	...	...	2) 20	2) 24	2) 0	2) 0	26	0
Importing Countries:										
Austria	0	0	108	121	0	0	820	1,695	0	1 779
Belgium	0	0	132	322	26	9	2,981	1,543	31	1,797
Denmark	0	2	262	397	0	4	3,393	3,536	4	4,090
Finland	0	0	293	33	0	0	1,204	143	0	450
France	0	0	0	0	0	2	20	31	4	35
Italy	—	—	—	—	—	—	—	—	0	179
Norway	0	0	93	231	0	0	2,590	2,026	0	2,535
Netherlands	0	0	172	128	77	227	1,276	1,545	227	1,854
Switzerland	0	0	55	15	0	0	267	126	0	161
Czechoslovakia	0	0	2	0	4	4	15	15	4	20
United States	0	0	0	1,279	2	0	983	5,269	0	5,917
Totals	**1,841**	**1,513**	**1,181**	**3,039**	**14,072**	**22,816**	**14,440**	**20,865**	**25,891**	**24,265**

---

1) 2) See notes page 509.

COUNTRIES	MAY				TEN MONTHS (August 1- May-31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	51	11	0	0	642	586	29	73	659	73
Bulgaria	0	0	0	0	0	0	0	0	0	0
Spain	0	0	0	0	13	0	0	0	0	0
France	280	293	101	119	2,771	3,788	1,045	1,351	4,266	1,539
Hungary	110	93	0	0	1,034	668	0	0	809	0
Italy	—	—	—	—	—	—	—	—	3,748	95
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	203	101	0	0	1,832	437	0	0	750	0
Romania	...	...	...	..	1) 2	1) 0	1) 0	1) 0	0	0
Yugoslavia	9	4	0	0	62	35	0	0	40	0
U. S. S. R.	...	...	...	..	2) 351	2) 558	2) 291	2) 205	833	207
Canada	880	752	11	55	8,042	7,694	106	342	9,310	390
United States	626	593	31	0	5,580	6,656	60	2	7,637	9
Argentina	207	137	—	—	1,470	1,790	—	—	2,136	—
Chile	...	...	...	...	2) 60	2) 42	2) 24	2) 42	49	66
India	29	24	2	0	357	240	9	4	309	4
Japan	317	747	46	4	3,686	6,204	183	22	7,194	46
Algeria	...	...	...	...	2) 560	2) 648	2) 75	2) 60	911	108
French Morocco	...	...	...	.	1) 4	1) 42	1) 0	1) 0	51	0
Tunis	31	42	2	0	362	549	24	60	626	62
Australia	1,085	1,221	0	0	10,060	12 028	0	2	14,376	2
Importing Countries										
Austria	0	0	66	99	2	2	648	586	2	774
Belgium	7	2	9	7	51	33	84	143	51	148
Denmark	2	2	9	26	20	15	170	406	18	474
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	15	13	0	0	128	434	0	527
Finland	0	0	66	79	0	0	545	703	0	849
Gr. Brit and N Irel	212	337	836	725	2,264	2,879	8,051	7,500	3,400	9,061
Greece	0	0	0	2	0	0	20	26	0	33
Norway	0	0	71	71	2	2	714	785	4	999
Netherlands	0	0	146	88	7	9	915	747	9	908
Portugal	—	—	9	11	—	—	90	115	—	150
Sweden	0	0	0	0	11	0	0	2	0	2
Czechoslovakia	0	0	2	0	4	4	20	15	4	20
Ceylon	—	—	20	31	—	—	293	346	—	403
China	.	...	..	...	1) 22	1) 57	1) 613	1) 1,228	57	1,499
Indo China	. .	...	33	26	1) 0	1) 0	331	317	0	384
Java and Madura	—	—	. .	...	—	—	1) 1,054	1) 919	—	1,149
Syria and Lebanon	37	2	46	0	75	53	121	77	62	101
Egypt	...	...	...	..	1) 0	1) 0	1) 51	1) 60	0	73
Union of South Afr	...	...	...	...	2) 0	2) 0	2) 7	2) 9	2	13
New Zealand	...	...	...	..	2) 0	2) 2	2) 159	2) 141	2	234
Totals	**4,086**	**4,361**	**1,521**	**1,356**	**39,346**	**45,021**	**15,860**	**16,722**	**57,315**	**20,402**
	Barley. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries										
Bulgaria	0	0	0	0	44	0	0	0	0	0
Spain	2	0	0	0	15	0	0	0	0	0
Hungary	24	4	0	0	256	88	362	24	93	24
Lithuania	11	11	0	0	324	165	0	0	176	0
Poland	719	159	0	0	7,090	6,693	0	0	7,180	0
Romania	...	...	...	.	1) 3,616	1) 3,680	1) 0	1) 0	4,198	0
Czechoslovakia	0	40	0	0	780	1,058	2	2	1,140	2
Yugoslavia	0	15	0	0	2	538	24	0	538	0
U. S. S. R.	...	...	...	.	2) 13,373	2) 2,939	—	-	3,669	—
Canada	392	664	0	0	2,110	6,235	0	0	7,227	0
United States	359	37	31	567	4,127	1,839	134	5,033	2,132	5,291
Argentina	567	620	—	—	3,657	8,536	—	—	9,654	—
Chile	...	...	0	0	2) 284	2) 1,067	—	—	1,217	—
India	0	15	2	0	2	390	90	9	390	13
Algeria	...	...	...	...	1) 659	1) 1,113	1) 384	1) 600	1,177	754
Egypt	...	..	. .	. .	1) 0	1) 0	1) 11	1) 15	0	18
French Morocco	...	..	...	. .	1) 1,914	1) 5,648	1) 0	1) 0	6,241	0
Australia	130	13	0	0	860	1,314	0	0	1,380	0
Importing Countries:										
Germany	0	0	439	397	0	0	1,124	10,049	2	10,498
Austria	0	0	108	46	0	0	996	1,411	0	1,574
Belgium	29	26	511	414	364	386	8.470	7,796	454	8,481
Denmark	82	7	0	66	1,530	1,393	75	833	1,398	1,030
Irish Free State	0	0	44	88	7	4	225	256	4	256
France	0	0	414	245	0	2	4,187	3,549	2	3,999
Gr Brit. and N. Irel.	0	0	955	666	2	9	19,235	12,222	9	14,315
Greece	0	0	26	15	0	0	152	64	0	77
Italy	—	—	—	—	—	—	—	—	0	1 852
Norway	0	0	22	9	0	2	322	152	2	168
Netherlands	0	4	375	386	214	194	5,362	5,353	194	5,913
Switzerland	0	0	82	203	0	0	2,315	2,407	0	2,696
Syria and Lebanon	212	0	0	0	712	112	7	37	139	44
Tunis	7	33	0	0	1,656	62	46	1,008	395	1,010
Totals	**2,534**	**1,648**	**3,009**	**3,102**	**43,598**	**43,467**	**43,523**	**50,820**	**49,011**	**58,015**

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Oats. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Irish Free State . .	0	0	0	0	0	0	0	0	0	0
Hungary	53	0	0	0	60	0	0	0	0	0
Lithuania	26	26	0	0	518	203	0	0	212	0
Poland	161	77	0	0	2,222	873	0	0	994	0
Romania	...	...	...	...	1) 353	1) 0	1) 0	1) 0	68	0
Czechoslovakia . .	0	0	0	0	82	2	13	2	53	2
Yugoslavia	0	37	0	0	73	269	0	0	280	0
Canada	273	542	0	0	3,144	4,101	0	0	4,965	0
United States . . .	4	4	7	359	86	35	22	4,689	150	4,828
Argentina	170	505	—	—	2,727	12,432	—	—	13,353	—
Chile	...	...	...	...	2) 302	2) 864	2) 0	2) 0	1,243	0
Tunis	4	20	0	0	209	368	0	0	467	0
Australia	4	18	0	0	90	256	0	2	265	2
Importing Countries:										
Germany	0	0	2	553	0	13	256	4,425	13	4,797
Austria	0	0	68	53	0	0	492	159	0	287
Belgium	0	0	128	51	0	0	796	205	0	432
Denmark	18	0	51	37	437	657	101	752	657	884
Estonia	0	0	11	0	0	15	44	0	15	0
Finland	0	0	82	0	0	0	705	11	2	11
France	2	0	13	24	7	31	381	340	33	425
Gr. Brit. and N. Irel.	2	2	79	276	18	15	2,154	2,498	18	3,488
Italy	—	—	—	—	—	—	—	—	0	4,808
Latvia	7	0	0	0	130	0	0	0	0	0
Norway	0	0	0	0	0	0	7	4	0	64
Netherlands . . .	44	2	33	68	212	11	412	608	11	873
Sweden	2	0	29	0	179	37	249	24	37	24
Switzerland	0	0	220	309	0	0	3,719	3,814	0	4,354
Algeria	...	...	...	...	2) 132	2) 119	2) 37	2) 86	132	141
Totals . . .	**770**	**1,233**	**723**	**1,730**	**10,981**	**20,303**	**9,388**	**17,619**	**22,968**	**25,420**
	Maize. — Thousand centals (1 cental = 100 lb.).									
					SIX MONTHS (November 1-April 30)				TWELVE MONTHS (Nov. 1 Oct. 31)	
Exporting Countries:										
Bulgaria	293	0	0	0	677	399	0	0	401	0
Hungary	2	18	1,030	170	31	130	6,120	262	130	2,996
Romania	...	...	...	...	1) 10,794	1) 5,082	1) 0	1) 0	10,146	0
Yugoslavia	7	794	0	0	895	9,220	0	0	12,652	0
United States . . .	42	4	525	1,700	101	216	5,247	7,352	251	23,034
Argentina	10,384	17,447	—	—	87,482	67,526	—	—	143,213	—
Java and Madura .	...	...	—	—	1) 1 202	1) 1,091	—	—	1,422	—
Indo-China	...	...	—	—	1) 3,406	1) 4,605	—	—	10,099	—
Syria and Lebanon .	22	0	0	0	53	0	0	7	2	7
Egypt . .	...	...	...	...	1) 0	1) 0	1) 4	1) 18	0	31
Union of South Afr.	2	752	...	...	1,440	5,664	2) 4	2) 0	10,247	0
Importing Countries:										
Germany	0	0	518	593	0	0	3,102	5,937	0	7,738
Austria	0	0	581	747	0	0	4,222	6,548	0	9,431
Belgium	64	46	1,508	1,354	359	454	11,771	8,413	728	16,208
Denmark	0	0	212	181	0	0	2,304	2,055	0	5,084
Spain	0	0	128	0	0	0	1,459	423	0	1,052
Irish Free State . .	0	0	423	814	0	0	2,593	3,230	0	6,237
Finland	0	0	278	18	0	0	1,411	258	0	988
France	0	4	871	626	2	7	9,182	10,110	9	14,154
Gr. Brit. and N. Irel	139	216	4,610	5,234	730	1,228	47,071	33,784	2,222	64,492
Greece	0	0	201	163	0	0	990	648	0	972
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	176	176	0	0	1,455	1,146	0	2,754
Netherlands . . .	0	0	1,285	1,393	0	0	12,218	11,471	0	19,321
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	53	29	2	0	254	430	0	548
Sweden	0	0	73	18	0	0	752	280	0	891
Switzerland	0	0	79	86	0	0	1,138	983	0	1,892
Czechoslovakia . .	0	0	212	174	0	0	1,157	1,581	0	2,672
Canada . . .	4	0	225	489	44	2	1,532	2,441	4	4,566
Japan	—	—	884	4	—	—	3,708	9	—	1,777
Tunis	0	0	0	0	4	0	0	55	7	55
Totals . . .	**10,959**	**19,281**	**13,842**	**13,969**	**107,222**	**95,624**	**117,694**	**97,441**	**191,533**	**186,900**

---

1) 2) See notes page 509.

COUNTRIES	May				Five months (January 1-May 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Rice. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Spain	121	24	0	0	487	368	0	0	613	0
Italy	—	—	—	—	—	—	—	—	—	—
United States	9	289	84	11	101	575	348	401	1,667	534
Brazil	...	...	—	—	1) 381	1) 282	—	—	2,086	—
India	2,546	5.591	317	247	15,282	23,252	1,768	1,766	37,172	4,797
Indo-China	...	...	...	...	1) 13,501	1) 17,908	1) 11	1) 4	38,925	33
Siam	2,870	2,531	—	—	14,892	15,752	—	—	33,837	—
Egypt	...	...	...	...	1) 855	1) 822	1) 0	1) 13	1,561	15
Importing Countries:										
Germany	68	49	328	351	168	168	1,343	1,614	611	4,209
Austria	0	0	46	53	0	0	212	278	0	745
Belgium	18	2	90	53	55	18	375	342	62	933
Denmark	0	0	11	4	0	0	53	44	0	90
Estonia	—	—	2	0	—	—	7	4	—	18
Irish Free State	0	0	9	4	0	0	42	20	0	55
France	44	40	2,077	831	130	331	5,617	4,442	514	9,473
Gr. Brit. and N Irel.	15	24	421	571	71	88	1,164	1,398	141	2,672
Greece	0	0	53	46	0	0	243	240	0	593
Hungary	0	0	15	11	0	0	154	130	0	414
Latvia	0	0	2	0	0	0	7	2	0	13
Lithuania	0	0	0	0	0	0	2	2	0	9
Norway	0	0	11	13	0	0	49	49	0	110
Netherlands	134	203	814	635	602	825	1,761	1,323	2,044	3,287
Poland	11	18	280	287	29	37	452	324	196	1,045
Portugal	—	—	31	35	—	—	35	112	—	414
Sweden	—	—	119	119	—	—	134	159	—	227
Switzerland	0	0	46	31	0	0	201	185	0	511
Czechoslovakia	0	0	121	132	0	0	293	419	0	1,473
Yugoslavia	0	0	24	37	0	0	181	174	0	441
Canada	4	0	117	95	7	2	304	245	4	644
Chile	—	—	...	...	—	—	2) 141	2) 55	—	306
Ceylon	0	0	869	1,129	2	2	5,245	5,284	2	12,511
China	...	...	..	...	1) 194	1) 51	1) 1,623	1) 15,190	146	28,581
Java and Madura	...	..	...	...	1) 20	1) 2	1) 148	1) 2,416	154	2,604
Japan	13	196	7	0	66	582	159	77	708	866
Syria and Lebanon	0	0	62	31	0	0	146	159	0	414
Algeria	...	...	...	...	2) 2	2) 0	2) 86	2) 57	2	152
Tunis	0	0	4	0	0	0	15	18	0	26
Union of South Afr.	...	...	...	...	2) 0	2) 0	2) 273	2) 220	0	1,204
Australia	13	18	7	4	86	84	29	24	247	51
New Zealand	...	...	...	...	2) 0	2) 0	2) 13	2) 11	0	79
Totals	**5,866**	**8,985**	**5,967**	**4,730**	**46,931**	**61,149**	**22,634**	**37,201**	**120,692**	**79,549**
	Linseed. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Lithuania	11	2	0	0	150	77	0	0	280	0
Argentina	1,960	3,719	—	—	13,349	20,091	—	—	39,187	—
India	851	675	0	0	2,641	1,021	0	0	2,919	0
Tunisia	0	0	0	0	0	0	0	0	2	0
Importing Countries:										
Germany	0	0	761	540	0	0	2,310	2,449	0	5,452
Belgium	2	18	97	93	86	82	1,089	1,173	112	2,725
Denmark	—	—	57	53	—	—	150	278	—	564
Spain	—	—	64	20	—	—	132	163	—	626
Estonia	0	0	2	2	2	2	11	4	4	20
Finland	0	0	13	7	0	0	71	42	0	84
France	0	0	399	580	2	2	3,159	2,723	4	5,697
Gr Brit. and N. Irel.	0	0	503	359	0	2	2,513	2,306	2	5,774
Greece	0	0	4	13	0	0	18	35	0	119
Hungary	0	0	0	0	0	4	0	0	9	0
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	4	2	26	49	29	44	57	84
Norway	0	0	18	68	0	0	225	278	0	536
Netherlands	2	0	386	730	68	53	2,921	5,020	77	8,871
Poland	57	0	0	0	68	0	0	0	26	0
Sweden	—	—	79	88	—	—	337	392	—	915
Czechoslovakia	0	0	49	117	0	0	218	326	0	578
Yugoslavia	0	0	0	51	0	0	46	115	0	185
Canada	0	0	18	150	4	4	346	231	11	284
United States	—	—	697	761	—	—	3,402	4,063	—	9,833
Japan	0	0	26	97	0	2	110	223	2	478
Australia	0	0	71	117	0	0	220	359	0	750
Totals	**2,883**	**4,414**	**3,248**	**3,848**	**16,396**	**21,389**	**17,307**	**20,224**	**42,692**	**43,575**

---

1) 2) **See notes page** 509.

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Butter. — (Thousand lb.).									
Exporting Countries:										
Austria	752	719	2	2	2,260	1,836	4	7	5,688	18
Denmark	30,334	27,496	0	18	130,073	122,474	9	40	304,900	152
Estonia	1,594	1,986	0	0	5,933	6,768	0	0	23,894	0
Irish Free State	7,822	8,281	0	0	11,365	11,872	0	4	59,470	40
Finland	2,463	1,691	0	0	12,405	10,093	0	0	22,582	0
Hungary	734	518	0	0	2,789	1,717	0	0	5,516	0
Latvia	3,937	3,292	0	0	11,936	11,444	0	0	37,073	0
Lithuania	1,504	2,088	0	0	6,365	6,257	0	0	26,795	0
Norway	0	0	0	0	351	247	0	0	417	4
Netherlands	15,197	14,617	2	2	51,774	42,208	31	220	103,146	430
Poland	1,391	15	0	0	6,821	635	0	2	12,533	2
Sweden	3,095	4,896	0	0	14,249	19,668	412	2	44,664	1,340
U. S. S. R.	...	...	...	...	2) 106	2) 7,311	2) 216	2) 209	64,801	529
Argentina	152	470	—	—	9,769	9,453	—	—	14,941	—
India	11	18	82	60	106	84	441	315	245	789
Syria and Lebanon	223	77	31	22	293	176	99	150	463	309
Australia	10,538	14,090	0	0	99,111	144,758	2	2	256,769	2
New Zealand	...	.	—	—	1) 116,804	1) 119,727	—	—	312,403	—
Importing Countries:										
Germany	0	2	12,549	11,045	0	4	65,526	70,352	13	156,529
Belgium	7	2	265	450	29	22	6,942	7,315	71	13,312
Spain	0	7	0	2	4	11	4	64	26	79
France	847	884	108	126	2,504	3,217	3,318	536	11,605	1,506
Gr. Brit. and N. Irel.	595	708	102,255	107,368	4,636	10,382	451,275	469,787	17,007	1,076,827
Greece	—	—	31	66	—	—	258	293	—	1,014
Italy	—	—	—	—	—	—	—	—	—	—
Switzerland	0	0	22	15	2	0	1,440	71	4	302
Czechoslovakia	0	0	227	511	2	0	229	1,541	4	2,928
Canada	35	24	57	9	152	174	106	35	7,696	148
United States	88	37	225	2,665	317	249	4,513	20,049	957	22,675
Ceylon	—	—	42	119	—	—	306	417	—	855
Java and Madura	—	—	...	...	—	—	1) 2,624	1) 3,759	—	10,247
Japan	—	—	2	0	—	—	7	11	—	22
Egypt	...	...	...	...	1) 29	1) 93	1) 342	1) 364	128	994
Tunis	0	0	174	75	2	9	930	1,003	24	2,017
Totals	**81,319**	**81,918**	**116,074**	**122,555**	**490,187**	**530,889**	**529,034**	**576,548**	**1,333,835**	**1,293,070**
	Cheese. — (Thousand lb.).									
Exporting Countries.										
Bulgaria	170	99	0	0	1,627	1,305	0	0	4,224	0
Denmark	2,130	1,093	2	9	9,330	5,395	9	18	14,689	29
Finland	922	642	0	0	4,317	3,708	7	4	9,365	22
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	2	37	0	0	35	445	0	0	496	2
Norway	243	256	20	18	1,470	1,193	95	106	3,146	251
Netherlands	9,590	11,931	55	49	46,888	53,270	370	300	134,597	838
Poland	13	0	26	37	42	500	99	130	620	287
Switzerland	3,708	3,448	302	353	18,532	15,404	1,270	1,453	40,248	3,851
Czechoslovakia	176	207	251	212	708	608	1,082	955	1,814	2,663
Yugoslavia	172	220	4	7	500	692	13	24	4,381	57
Canada	3,609	1,204	55	168	7,906	2,418	366	434	55,722	1,274
Australia	683	717	7	7	5,589	8,505	26	20	15,335	77
New Zealand	.	.	...	...	1) 71,831	1) 80,330	1) 0	1) 0	193,487	0
Importing Countries:										
Germany	31	44	4,738	5,273	143	384	25,677	24,855	728	61,661
Austria	1,047	454	229	254	4,156	3,349	809	787	7,366	1,724
Belgium	24	20	3,653	4,103	132	93	18,638	19.176	355	50,726
Spain	15	15	55	243	51	49	617	988	108	2,522
Irish Free State	35	22	15	7	265	115	64	33	1,027	62
France	2,050	2,357	2,441	2,564	10,256	11,277	13,190	14,445	24,628	34,807
Gr. Brit. and N. Irel.	522	463	26,398	25,382	2,496	2,258	119,409	138,493	5,818	304,980
Greece	46	0	18	117	121	126	196	686	181	1,120
Hungary	86	62	0	0	333	90	0	2	278	4
Portugal	—	—	37	37	—	—	101	150	—	417
Sweden	—	—	309	79	—	—	1,457	507	—	2,502
United States	97	97	3,153	3,735	445	500	20,095	20,069	1,153	48,934
India	0	0	88	88	0	0	412	492	2	1,276
Java and Madura	—	—	...	...	—	—	1) 408	1) 522	—	1,920
Syria and Lebanon	37	117	236	66	123	214	509	461	503	979
Algeria	...	...	...	...	2) 26	2) 31	2) 3,336	2) 2,895	119	13,349
Egypt	...	...	...	...	1) 2	1) 26	1) 2,388	1) 2,359	86	7,330
Tunis	18	4	247	313	75	20	1,060	1,202	46	2,948
Totals	**25,426**	**23,509**	**42,339**	**43,121**	**187,399**	**192,305**	**211,703**	**231,566**	**520,522**	**546,612**

1) 2) See notes page 509.

Cotton. — Thousand centals (1 cental = 100 lbs.).

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
Exporting Countries:										
United States . . .	1,973	1,614	110	53	30,234	22,996	626	470	26,505	536
Argentina	126	82	—	—	692	463	—	—	694	—
Brazil	...	...	—	—	1) 2,004	1) 2,760	—	—	3,567	—
India	1,620	1,784	154	273	12,485	10,745	1,027	1,442	12,553	1,845
Egypt	...	...	—	—	1) 6,590	1) 6,519	—	—	7,912	—
Importing Countries:										
Germany	2	86	500	597	571	816	6,449	5,148	966	6,391
Austria	0	0	68	64	0	4	787	575	4	672
Belgium	46	71	192	176	481	615	1,843	1,698	710	2,068
Denmark	—	—	20	15	—	—	143	148	—	185
Spain	4	2	194	190	33	46	1,839	1,757	51	2,161
Estonia	0	0	9	9	0	0	99	97	0	117
Finland	0	0	13	20	0	4	245	256	4	287
France	26	31	527	408	298	549	6,151	4,187	620	5,055
Gr. Brit and N. Irel.	62	60	1,093	871	551	593	12,485	9,654	710	12,170
Greece	0	7	9	20	9	11	99	117	11	165
Hungary	0	0	51	51	0	0	463	417	0	489
Italy	—	—	—	—	—	—	—	—	2	3,501
Latvia	0	0	7	11	0	0	82	95	0	108
Norway	0	0	7	9	0	0	62	55	0	64
Netherlands . . .	0	2	62	79	4	4	862	741	4	847
Poland	0	0	134	117	4	7	1,373	1,179	9	1,437
Portugal	—	—	24	33	—	—	509	388	—	448
Sweden	—	—	46	46	—	—	562	525	—	624
Switzerland . . .	0	0	40	42	0	0	476	492	2	564
Czechoslovakia . .	2	4	174	137	42	62	1,876	1,340	73	1,554
Yugoslavia	0	0	31	24	0	0	309	260	0	320
Canada	—	—	99	64	—	—	1,224	1,067	—	1,241
China	...	...	..	...	1) 805	1) 348	1) 604	1) 1,100	384	1,640
Japan	57	97	1,810	1,063	456	545	14,659	14,795	595	17,430
Algeria	...	..	...	...	2) 0	2) 4	2) 4	2) 2	4	4
Totals . . .	**3,918**	**3,840**	**5,374**	**4,372**	**55,259**	**47,091**	**54,858**	**48 005**	**55,380**	**61,923**

Wool. — (Thousand lb).

					NINE MONTHS (September 1 May 31)				TWELVE MONTHS (Sept. 1-August 31)	
Exporting Countries										
Irish Free State .	809	1,191	79	37	11,396	9,383	326	589	13,486	646
Hungary	37	0	152	273	549	1,329	1,376	2,956	1,867	3,267
Argentina . . . a)	19,194	24,952	—	—	220,655	218,986	—	—	271,361	—
Argentina . . . b)	3,023	2,881	—	—	25,214	22,163	—	—	32,115	—
Chile	...	...	...	...	2) 15,834	2) 15,091	2) 791	2) 71	21,918	240
India	3,589	6,122	888	745	45,279	36,308	5,842	6,155	52,516	7,436
Syria and Lebanon .	231	545	13	0	3,267	5,102	172	79	5,545	82
Algeria	...	...	. .	...	2) 6,841	2) 4,171	2) 688	2) 1,263	8,177	2,319
Egypt	...	...	...	...	1) 2,452	1) 1,625	1) 62	1) 33	3,574	55
Un. of S. Africa . a)	14,077	16,341	...	...	197,147	201,106	2) 97	2) 20	213,563	57
Un. of S. Africa . b)	53	688	...	...	5,007	6,206	2) 1,296	2) 939	8,620	1,468
Australia . . . a)	35,248	58,343	597	287	682,595	729,596	7,875	3,192	815,232	3,695
Australia . . . b)	443	9,958	20	0	46,370	55,091	110	90	73,571	132
New Zealand . a)	34.965	19,901	...	...	253,323	147,488	2) 90	2) 101	160,673	101
New Zealand . b)	6 940	5,430	...	...	37,181	30,047	2) 22	2) 22	46,196	37
Importing Countries:										
Germany. . . . a)	9	362	25,001	41,833	366	5,311	133,870	185,742	5,701	235,040
Germany. . . . b)	134	238	2,732	6,010	1,087	1,861	23,515	44,686	2,086	55,398
Austria	7	13	2,454	1,515	198	1,010	18,750	13,589	1,038	18,843
Belgium . . . a)	6,801	11,993	25,728	33,753	58,473	77,524	186,741	167,296	99,341	222,851
Belgium . . . b)	2,046	1,909	287	571	20,126	14,958	3,995	2,884	20,113	4,405
Denmark	110	22	582	529	306	282	3,896	3,735	401	4,700
Spain	82	183	148	1,889	3,761	2,522	6,067	7,665	3,128	10,697
Finland	0	7	520	456	203	218	4,299	4,037	220	5,417
France	2,355	4,279	40,208	43,237	40,772	32,686	291,188	262,893	43,863	375,363
Gr. Brit. and N. Irel.	27,417	37,100	107,152	118,916	245,863	230,823	735,008	684,401	317,070	836,329
Greece	254	99	996	725	992	478	8,294	5,135	721	7,568
Italy . . . . . . a)	—	—	—	—	—	—	—	—	628	88,373
Italy . . . . . . b)	—	—	—	—	—	—	—	—	1,186	14,127
Norway	115	128	205	170	842	1,078	2,191	1,753	1,329	2,304
Netherlands . . a)	216	117	509	421	2,414	2,641	5,251	4,892	3,060	6,301
Netherlands . . b)	79	79	260	646	1,085	1,301	4,019	5,937	1,501	7,829
Poland	11	11	4,259	5,084	154	97	37,066	23,620	112	36,341
Sweden	—	—	1,698	1,228	—	—	16,105	13,982	—	18,263
Switzerland	42	20	1,276	2,326	163	185	11,572	16.954	212	22,053
Czechoslovakia . .	306	33	4,954	3,999	844	1,263	34,086	23,232	1,429	33,204
Yugoslavia	359	88	1,122	798	3,532	972	6,654	5,602	1,107	7,690
Canada	417	381	2,800	615	6,885	4,288	16.766	7,593	6,261	11,973
United States . . .	0	2	17,207	15,779	22	24	190,727	92,180	27	147,234
Japan	137	106	28,521	32,794	833	306	232,090	163,901	507	224,482
Tunis	240	132	73	18	838	666	373	216	983	295
Totals . . .	**159,746**	**203,654**	**270,441**	**314,654**	**1,942,869**	**1,864,186**	**1,991,270**	**1,756,535**	**2,240,438**	**2,416,615**

Coffee. — (Thousand lb.).

COUNTRIES	May		Eleven months (July 1-May 31)		Twelve months (July 1-June 30)
	1936	1935	1935-36	1934-35	1934-35
Exporting Countries:			EXPORTS.		
Brazil	...	...	1) 1,765,913	1) 1,427,712	1,773,757
India	4,034	3,455	25,071	14,198	16,521
Java and Madura	...	...	1) 48,949	1) 56,174	65,493
Importing Countries:					
Germany	0	0	0	66	66
Belgium	101	13	677	137	159
France	0	0	4	7	9
Gr. Britain and N Ireland	1,230	1,984	22,437	17,487	18,962
Netherlands	112	518	6,784	10,642	11,524
Portugal	304	243	3,069	2,498	2,712
Switzerland	0	0	2	553	553
Canada	35	22	203	97	115
United-States	597	608	8,027	6,038	6,625
Ceylon	0	0	2	4	4
Syria and Lebanon	0	0	4	0	0
Australia	2	4	22	49	73
Totals	—	—	—	—	**1,896,573**
Importing Countries:			IMPORTS		
Germany	28,270	28,724	300,654	302,634	327,491
Austria	825	1,041	10,529	11,402	12,291
Belgium	8,962	9,509	100,976	95,890	103,774
Bulgaria	79	73	994	977	1,060
Denmark	6,034	5,326	50,781	54,452	58,238
Spain	3,508	4,892	48,601	48,323	52,117
Estonia	24	11	181	148	163
Irish Free State	33	49	562	494	520
Finland	3,613	3,860	38,283	35,902	39,117
France	36,476	24,815	392,585	352,232	392,492
Gr. Britain and N. Ireland	2,773	5,179	51,026	55,819	57,574
Greece	1,199	1,164	12,311	11,495	12,604
Hungary	434	899	4,120	5,419	5,534
Italy	—	—	—	—	86,975
Latvia	46	13	238	128	143
Lithuania	31	35	399	388	419
Norway	2,030	4,497	39,595	32,377	35,894
Netherlands	2,824	6,153	90,476	57,051	62,949
Poland	1,711	412	11,089	14,540	15,668
Portugal	1,250	1,380	12,247	14,416	15,847
Sweden	7,716	8,922	98,657	88,004	97,506
Switzerland	2,216	3,719	36,229	27,990	32,476
Czechoslovakia	2,066	1,971	21,777	21,592	23,810
Yugoslavia	1,151	1,512	13,433	12,699	13,770
Canada	5,346	3,474	35,719	28,268	31,800
United States	116,061	130,869	1,729,232	1,423,441	1,551,815
Chile	...	...	2) 6,239	2) 3,909	5,743
Ceylon	101	320	2,608	3,025	3,272
Japan	556	661	10,307	6,376	7,017
Syria and Lebanon	265	134	2,218	2,048	2,286
Algeria	...	...	2) 23,607	2) 22,924	31,171
Egypt	...	...	1) 13,832	1) 12,663	15,726
Tunisia	353	234	3,029	3,086	3,382
Union of S. Africa	...	...	2) 24,290	2) 19,231	26,960
Australia	384	719	4,070	3,153	3,567
New Zealand	...	...	2) 289	2) 223	456
Exporting Countries:					
India	0	0	0	0	0
Totals	**236,337**	**250,567**	**3,191,183**	**2,772,719**	**3,131,627**

Tea. — (Thousand lb.)

COUNTRIES	May		Eleven months (July 1-May 31)		Twelve months (July 1-June 30)
	1936	1935	1935-36	1934-35	1934-35
Exporting Countries:			EXPORTS.		
Ceylon	26,134	25,578	203,432	192,147	213,701
China	...	...	1) 70,112	1) 83,551	96,477
India	12,101	9,266	303,276	312,996	327,925
Java and Madura.	...	...	1) 95,370	1) 98,446	120,847
Japan	690	1,118	30,228	29,097	30,986
Importing Countries:					
Belgium	0	2	2	9	9
Irish Free State	0	0	20	254	256
France	2	2	15	24	26
Gr. Brit. and N. Irel.	6,821	6,135	66,741	62,016	68,831
Netherlands	7	9	106	115	132
Syria and Lebanon	0	0	11	9	9
Algeria	...	...	1) 4	1) 93	93
Union of S. Africa.	...	...	2) 212	2) 22	31
Australia	51	55	586	747	802
New Zealand.	...	...	2) 95	2) 86	112
Totals	**45,806**	**42,165**	**770,210**	**779,612**	**860,237**
Importing Countries:			IMPORTS		
Germany	807	725	9,513	9,440	10,216
Austria	44	68	752	794	836
Belgium	51	73	516	564	613
Denmark	115	201	1,045	1,142	1,230
Spain	11	9	238	238	273
Estonia	11	7	88	73	77
Irish Free State	2,379	1,969	19,782	21,394	22,818
Finland	22	18	256	220	247
France	260	240	2,659	2,004	2,189
Gr. Britain and N. Ireland	30,922	24,145	456,808	478,533	507,905
Greece.	15	29	401	437	448
Hungary.	29	77	414	606	611
Italy	—	—	—	—	342
Latvia.	7	7	66	79	84
Lithuania	4	2	82	77	77
Norway	29	26	340	311	337
Netherlands	2,141	2,385	26,306	27,666	30,034
Poland	214	214	3,144	3,545	3,814
Portugal	51	42	412	368	399
Sweden	84	90	952	858	944
Switzerland	165	163	1,733	1,501	1,609
Czechoslovakia	53	64	1,111	992	1,056
Yugoslavia	18	20	351	423	439
Canada	7,024	3,190	42,355	27,675	30,287
United States	5,450	5,999	78,747	78,073	83,571
Chile	...	...	2) 3,289	2) 3,311	5,093
Syria and Lebanon	15	2	287	470	470
Algeria	...	...	2) 1,878	2) 2,264	2,897
Egypt	...	...	1) 11,222	1) 13,181	15,794
Tunisia	282	317	6,087	3,111	3,417
Union of S. Africa	...	...	2) 11,043	2) 9,687	13,056
Australia	3,426	4,023	36,892	42,543	46,875
New Zealand.	...	...	2) 8,186	2) 6,949	9,374
Exporting Countries:					
China	...	...	1) 635	1) 545	602
India	104	128	5,066	2,972	3,115
Java and Madura.	...	...	1) 902	1) 1,495	1,649
Totals	**53,733**	**44,233**	**733,558**	**743,541**	**802,798**

---

1) 2) See notes page 509.

Cacao. — (Thousand lb.).

COUNTRIES	MAY 1936	MAY 1935	EIGHT MONTHS (Oct. 1-May 31) 1935-36	EIGHT MONTHS (Oct. 1-May 31) 1934-35	TWELVE MONTHS (Oct. 1-Sept 30) 1934-35
			EXPORTS.		
Exporting Countries:					
Grenada	...	...	1) 6,894	1) 9,905	12,804
Dominican Republ.	5,692	12,086	31,778	38,219	62,420
Brazil	..	...	1) 155,321	1) 122,637	225,000
Ecuador	6,775	9,502	31,901	22,496	41,557
Trinidad	..	.	1) 20,591	1) 28,702	45,746
Venezuela.	.	...	2) 10,435	2) 9,363	28,464
Ceylon	346	406	4,513	5,260	7,893
Java and Madura	...	...	1) 2,383	1) 1,801	3,283
Cameroon (Fr m t)	...	...	1) 43,160	1) 38,923	48,956
Ivory Coast	.		1) 83,181	1) 73,785	97,575
Gold Coast	19,158	17,644	518,888	447,425	541,034
Nigeria and Cameroon (Brit m t)	5,622	15,124	162,517	153,149	184,186
Saint Thomas and Prince Is	2,460	1,224	25,358	18,587	22,073
Togoland (Fr m t)	1,312	1,556	15,688	13,744	19,674
Importing Countries					
Germany	0	0	7	88	88
Belgium	9	0	9	176	176
France	0	0	9	2	2
Gr. Brit. and N. Irel	390	637	4,339	10,988	15,499
Netherlands	496	190	3,499	3,062	4,643
Australia	11	0	46	392	408
Totals	**42,271**	**58,369**	**1,120,517**	**998,704**	**1,361,481**
			IMPORTS		
Importing Countries:					
Germany	11,949	14,099	118,627	120 346	165,896
Austria	1,052	1,168	8,289	9,083	12,485
Belgium	1,462	1,188	17,000	12 895	20,686
Bulgaria	172	132	1,259	620	805
Denmark	977	1,071	7,209	5 434	8,552
Spain	2,291	3,190	11,014	16 358	22,615
Estonia	110	49	648	507	756
Irish Free State	172	933	2,762	2,493	2,820
Finland.	24	20	218	172	256
France	31,729	9,445	91,036	62,168	90,531
Gr Brit and N. Irel.	12,361	13,649	252 324	171,289	196,128
Greece	256	227	2,452	2 061	2,840
Hungary	972	511	7,238	5,930	8,638
Italy	—	—	—	—	26,652
Latvia	112	88	851	891	1,235
Lithuania	79	84	820	536	758
Norway	412	121	3,470	4 566	6,731
Netherlands	8,466	11,407	106,733	98,421	134,247
Poland	1,464	421	9,692	11,466	15,845
Portugal	90	110	833	791	1,124
Sweden	911	895	8,303	8,913	12,103
Switzerland	1,993	2,520	15,073	10,939	16,052
Czechoslovakia	1,653	2,366	21,422	16,014	23,199
Yugoslavia	31	128	1,400	1,166	1,867
Canada	5,205	4,945	18,922	18,532	25,790
United States	21,718	26,350	437,498	421,091	566,112
Japan	146	381	2,800	2,727	3,311
Australia	1,649	1,603	11,592	10,897	14,500
New Zealand	...	...	2) 2,205	2) 1,534	3,393
Totals	**107,456**	**97,101**	**1,161,690**	**1,017,840**	**1,385,927**

Total Wheat and Flour *)

(Thousand centals)

COUNTRIES	MAY 1936	MAY 1935	NINE MONTHS (Aug. 1-May 31) 1935-36	NINE MONTHS (Aug. 1-May 31) 1934-35	TWELVE MONTHS (August 1-July 31) 1934-35
			a) **NET EXPORTS**		
Exporting Countries:					
Bulgaria	0	220	573	220	220
Spain	0	0	0	0	0
Estonia	3)	3)	3)	93	121
France	3)	2,209	3)	7,716	10,494
Hungary	527	798	1 438	6,828	7,604
Latvia	0	66	877	146	659
Lithuania	46	55	1,243	573	584
Poland	417	198	3,497	1,058	2,264
Portugal	922	3)	1,839	3)	3)
Romania	...	...	1) 3,353	1) 139	2,533
Sweden	97	326	836	439	1,069
Yugoslavia	11	141	84	2,478	2,551
U S S R	...	...	2) 16,588	2) 888	1,082
Canada	17,549	8,122	118,781	87 037	98,518
Argentina	2,531	9,559	36,548	94,590	108,701
Chile	...	..	2) 840	2) 525	225
India	46	37	390	454	540
Syria and Lebanon	75	11	86	176	207
Algeria	...	..	2) 4,502	2) 5,536	7,774
French Morocco		.	1) 2,317	1) 3,267	4,511
Tunisia	55	205	2,681	1,779	2,637
Australia	4 914	5,562	54,269	56,302	64,093
Totals	**27,190**	**27,509**	**255,742**	**270,244**	**316,387**
			b) **NET IMPORTS.**		
Importing Countries.					
Germany	35	287	31	5,807	6,120
Austria	437	617	3,358	4,418	5,831
Belgium	2 557	1 470	19,914	20,214	23,839
Denmark	417	622	4,092	10,150	11,341
Estonia	79	0	35	4)	4)
Irish Free State	1,014	1,118	7,275	8,558	10,124
Finland	225	309	1,953	1,949	2,469
France	714	4)	4,786	4)	4)
Gr Brit and N Irel	10 712	12 209	100,275	99,394	119,901
Greece	990	1,404	6,832	6,570	8,728
Italy	—	—	—	—	7,289
Norway	443	556	3,915	4,202	5,232
Netherlands	1,188	820	10,576	10,278	11,590
Portugal	4)	37	4)	315	408
Romania	. .	...	4)	4)	4)
Switzerland	5) 549	5) 875	5) 7,447	5) 8,320	5) 10,748
Czechoslovakia	2	57	1,307	648	864
Total Europe	*19,362*	*20,379*	*171,796*	*180,823*	*224,484*
United States	891	309	18,534	3,541	3,904
Ceylon	33	46	478	483	571
China	...	.	1) 3,439	1) 8,327	12,522
Indo China	44	35	1) 441	1) 423	511
Japan	77	82	3,012	1,188	1,336
Java and Madura	...	...	1,404	1,226	1,532
Egypt.	..	.	1) 68	1) 1,263	1,299
Union of S Africa	...	...	2) 29	2) 529	545
New Zealand.	.	...	2) 379	2) 192	331
Totals	**20,407**	**20,851**	**199,580**	**197,995**	**247,035**

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1 333,333 centals of grain.

a) Excess of exports over imports — *b)* Excess of imports over exports

1) Data up to 30 April — 2) Data up to 31 March. — 3) See Net Imports — 4) See Net Exports. — 5) Wheat only.

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE.

Statistics received too late for inclusion in the tables and statistics for June already available.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1936	1935	1936	1935
	May	May	May	May
FRENCH MAROCCO				
Wheat . . . . . 1000 centals	452	450	0	0
Wheat flour . . . » »	0	9	0	0
Barley . . . . . » »	340	273	0	0
OTHER COUNTRIES: Cacao				
Cameroon (Fr. m. t.) 1000 lb.	3,796	3,131	—	—
Ivory Coast . . » »	9,826	4,054	—	—
	June	June	June	June
GERMANY				
Wheat . . . . . 1000 centals	...	...	185	220
Rye . . . . . . » »	...	...	60	381
Barley . . . . . » »	...	...	280	280
Oats . . . . . . » »	...	...	13	187
Butter . . . . . 1000 lb.	...	...	9,520	7,736
Cheese . . . . . » »	...	...	4,608	4,345
GRT. BRITAIN AND N. IRELAND				
Wheat . . . . . 1000 centals	33	66	11,572	9,778
Wheat flour . . . » »	150	273	798	725
Barley . . . . . » »	0	0	1,634	1,003
Oats . . . . . . » »	0	0	443	500
Maize . . . . . . » »	88	185	4,879	5,309
Rice . . . . . . » »	9	11	249	220
Linseed . . . . . » »	0	0	516	326
Butter . . . . . 1000 lb.	514	615	98,190	95,313
Cheese . . . . . » »	461	474	28,016	20,117
Cotton . . . . . 1000 centals	60	64	1,325	831
Wool . . . . . . 1000 lb.	25,988	38,548	67,980	54,961
Coffee . . . . . » »	1,036	1,475	1,243	1,755
Tea . . . . . . » »	5,326	6,815	29,507	29,374
Cacao . . . . . . » »	734	741	10,002	8,702
NORWAY				
Wheat . . . . . 1000 centals	0	0	295	483
Rye . . . . . . » »	0	0	494	309
Wheat flour . . . » »	0	0	104	95
Maize . . . . . . » »	0	0	243	302
Rice . . . . . . » »	0	0	13	20
Linseed . . . . . » »	0	0	49	53
Cheese . . . . . 1000 lb.	245	238	15	18
Cotton . . . . . 1000 centals	0	0	4	4
Wool . . . . . 1000 lb.	99	82	220	181
Coffee . . . . . » »	0	0	1,918	3,516
Cacao . . . . . » »	0	0	560	1,122
HUNGARY				
Wheat . . . . . 1000 centals	1,523	375	0	0
Rye . . . . . . » »	42	15	0	0
Wheat flour . . . » »	71	115	0	0
	June	June	June	June
HUNGARY (*cont.*)				
Barley . . . . . 1000 centals	11	4	0	0
Oats . . . . . . » »	42	0	0	0
Maize . . . . . . » »	0	0	496	245
Rice . . . . . . » »	0	0	29	31
Cotton . . . . . » »	0	0	44	31
Coffee . . . . . . 1000 lb.	0	0	278	112
Cacao . . . . . » »	0	0	507	633
NETHERLANDS				
Wheat . . . . . 1000 centals	0	340	1,041	604
Rye . . . . . » »	0	0	227	101
Wheat flour . . . » »	0	0	141	71
Barley . . . . . » »	0	0	697	159
Oats . . . » »	4	0	35	170
Maize . . . . . » »	2	0	1,340	1,537
Rice . . . . . . » »	190	179	278	344
Linseed . . . . . » »	2	0	377	728
Butter . . . . 1000 lb.	12,868	10,728	2	0
Cheese . . . . . » »	10,384	11,868	57	55
Cotton . . . . . 1000 centals	0	0	53	49
Wool a) . . . . 1000 lb.	238	137	443	692
Wool b) . . . . » »	31	49	260	721
Coffee . . . . » »	55	882	2,520	5,897
Tea . . . . . . » »	7	18	2,674	2,368
Cacao . . . . . . » »	432	359	11,541	8,968
SWITZERLAND				
Wheat . . . . . 1000 centals	0	0	1,567	1,270
Rye . . . . . . » »	0	0	44	26
Barley . . . . » »	0	0	172	126
Oats . . . . . » »	0	0	357	271
Maize . . . » »	0	0	123	123
Rice . . . . » »	0	0	22	29
Butter . . . . . 1000 lb.	0	0	24	20
Cheese . . . . » »	3,364	3,364	218	212
Cotton . . . . 1000 centals	0	0	33	40
Wool . . . . . 1000 lb.	26	2	1,958	2,163
Coffee . . . . . » »	0	0	2,053	4,484
Tea . . . . . . » »	—	—	86	108
Cacao . . . . . » »	—	—	569	1,631
SIAM				
Rice . . . . 1000 centals	2,544	2,227	—	—
GOLD COAST				
Cacao . . . . . 1000 lb.	20,900	21,416	—	—
NEW ZEALAND				
Butter . . . . . 1000 lb.	26,158	14,637	—	—
Cheese . . . . . » »	15,252	11,323	0	0
Wool a) . . . . » »	42,302	5,423	0	0
Wool b) . . . . » »	5,040	5,822	0	4

a) Wool, greasy — *b)* Wool, scoured.

STOCKS OF CEREALS

Stocks of cereals in farmers' hands in the United States.

PRODUCTS	% stocks : total production					Stocks in 1,000 centals				
	1 July 1936	1 April 1936	1 Jan. 1936	1 July 1935	1 July 1934	1 July 1936	1 April 1936	1 Jan. 1936	1 July 1935	1 July 1934
Wheat	7.3	16.1	26.4	8.4	11.4	26,256	58,232	95,634	25,156	36,194
Oats	20.7	41.4	64.5	13.4	14.7	79,206	158,293	246,865	22,557	34,425
Maize 1)	17.8	40.3	69.8	18.3	23 3	219,621	434,623	752,028	113,377	265,647

1) Data based on maize for grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	July 1936	June 1936	May 1936	July 1935	July 1934
	1,000 centals				
WHEAT :					
Canadian in Canada	...	89,200	103,970	113,419	108,953
U. S in Canada	...	0	0	0	0
U. S in the United States	13,897	18,704	24,419	13,171	48,329
Canadian in the United States	9,368	8,029	7,133	5,567	6,073
Of other origin in the United States	0	0	0	867	0
Total	...	*115,933*	*135,522*	*133,024*	*163,355*
RYE :					
Canadian in Canada	...	2,135	2,693	1,819	2,124
U S. in Canada	...	0	0	0	0
U. S. in the United States	3,769	3,847	3,925	4,794	6,413
Canadian in the United States	169	127	0	112	38
Of other origin in the United States	0	0	0	1,917	881
Total	...	*6,109*	*6,618*	*8,642*	*9,456*
BARLEY :					
Canadian in Canada	...	3,406	4,192	2,439	4,386
U. S. in Canada	...	24	0	0	0
U. S. in the United States	5,074	5,675	6,198	2,929	5,104
Canadian in the United States	0	0	0	117	0
Of other origin in the United States	0	0	0	264	0
Total	...	*9,105*	*10,390*	*5,749*	*9,490*
OATS :					
Canadian in Canada	...	2,929	3,564	1,981	3,505
U. S. in Canada	...	9	0	0	98
U. S. in the United States	9,939	9,934	11,360	2,828	7,478
Canadian in the United States	0	0	26	0	0
Of other origin in the United States	0	0	0	19	0
Total	...	*12,872*	*14,950*	*4,828*	*11,081*
MAIZE :					
U. S. in Canada	...	249	0	749	1,586
Of other origin in Canada	...	562	559	1,197	410
U. S. in the United States	3,912	3,448	4,284	4,195	21,455
Of other origin in the United States	0	0	0	571	0
Total	...	*4,259*	*4,843*	*6,712*	*23,451*

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	July 1936	June 1936	May 1936	July 1935	July 1934
	1,000 centals				
Wheat (and flour in terms of grain) . .	16,032	19 056	19,920	16,483	19 910
Rye.	514	749	278	734	250
Barley	1,416	2,276	1,664	1,184	2,160
Oats	560	493	234	797	790
Maize	12,499	13,339	13,709	16,258	12,307

AUTHORITY: *Broomhall's Corn Trade News.*

Stocks of cereals and potatoes belonging to farmers in Germany.

PRODUCTS	% stocks: total production				Stocks in 1,000 centals			
	30 June 1936	31 May 1936	30 June 1935	30 June 1934	30 June 1936	31 May 1936	30 June 1935	30 June 1934
Winter wheat .	3	6	3	4	2,800	5,700	2 600	4,300
Spring wheat	2	5	2	4	200	400	300	600
Rye	5	9	6	5	8,200	14,800	10,000	9,500
Winter barley . . .	3	5	2	3	700	1,100	300	500
Spring barley . . .	3	6	4	3	1,600	3,200	2,200	1,800
Oats	10	15	11	12	11,900	17,800	13,200	18,400
Late potatoes . .	4	9	4	2	35,000	78,800	39,200	18,100

AUTHORITY *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I I A)

Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	June 1936	May 1936	April 1936	June 1935	June 1934
	1,000 centals				
WHEAT:					
Grain	.	21,658	25,261	28,268	26,923
Flour for bread	. .	2,542	2,956	3,078	2,608
TOTAL 1) . . .	..	*25,188*	*29,368*	*32,543*	*30 545*
RYE:					
Grain	...	13 431	17,591	23,563	16,089
Flour for bread	...	1,135	1,402	1,647	1,482
TOTAL 1) . . .	.	*15,100*	*19,652*	*25,986*	*18,268*
BARLEY	.	1,554	1,889	1,667	778
OATS.	..	3,102	3,228	2,743	818

1) Including flour in terms of grain, on the basis of the coefficient· 1,000 centals of wheat-flour = 1,388.89 centals of wheat. 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	July 1936	June 1936	May 1936	July 1935	July 1934
	First day of month				
	1,000 centals				
WHEAT					
Grain	5 400	5 160	5,088	5,616	7 800
Flour as grain	744	792	816	648	984
TOTAL	*6,144*	*5 952*	*5,904*	*6,264*	*8,784*
BARLEY	1 160	1,200	1,400	560	900
OATS	240	208	272	336	480
MAIZE	3 072	2 688	3,024	2,160	3,504

1) Imported cereals
AUTHORITY *Broomhall s Corn Trade News*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	July 1936	June 1936	May 1936	July 1935	July 1934
	Saturday nearest 1st of month 2)				
	1,000 centals				
WHEAT					
Antwerp	494	1 003	825	915	1,542
Rotterdam	348	121	130	354	816
Amsterdam	44	34	20	15	42
RYE					
Antwerp	15	13	26	158	26
Rotterdam	8	7	22	226	220
Amsterdam	0	0	0	2	21
BARLEY					
Antwerp	102	124	197	354	59
Rotterdam	55	3	44	7	44
Amsterdam	0	0	1	1	30
OATS					
Antwerp	55	47	73	31	18
Rotterdam	12	0	0	18	73
Amsterdam	34	35	23	28	33
MAIZE					
Antwerp	26	63	107	31	37
Rotterdam	17	35	11	121	66
Amsterdam	3	19	0	27	28

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month for Amsterdam to the first day of the month indicated
AUTHORITIES *Nederlandsche Silo Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam* Rotterdam

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	June 1936	May 1936	April 1936	June 1935	June 1934
	1,000 centals				
In consuming establishments	4,800	5,302	5,791	4,294	6,531
In public storage and at compresses	22,026	25,486	29,299	29,577	29,505
TOTAL	*26,826*	*30,788*	*35,090*	*33,871*	*36,036*

Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	July 1936	June 1936	May 1936	July 1335	July 1934
	1,000 centals				
Bombay 1)	3,164	3,436	3,431	2 676	4,324
Alexandria 2)	979	1,545	1,895	917	1,938

1) Stocks held by exporters, dealers and mills. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES. *East Indian Cotton Assn* and *Commission de la Bourse de Minet-el-Bassal.*

Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	July 1936	June 1936	May 1936	July 1935	July 1934
	1,000 centals				
Great Britain:					
American	1,411	1,384	1,617	1,074	1,901
Argentine, Brazilian, etc	409	390	380	235	649
Peruvian, etc.	126	119	165	301	303
East Indian, etc	341	381	306	257	416
Egyptian, Sudanese	973	962	948	1,050	1,489
W. Indian, W and E African, Australian	167	145	140	158	232
TOTAL	*3,427*	*3,381*	*3,556*	*3,115*	*4,990*
Bremen:					
American	669	783	919	604	2,006
Other	309	221	234	276	184
TOTAL	*978*	*1,004*	*1,153*	*880*	*2,190*
Le Havre:					
American	555	615	729	364	894
French colonies	17	17	17	13	50
Other	138	114	89	71	79
TOTAL	*710*	*746*	*835*	*448*	*1,023*
Total Continent 1)					
American	1,735	1,863	2,185	1,437	3,484
Argentine, Brazilian, etc	256	144	127	166	66
E Indian, Australian, etc.	220	214	215	248	210
Egyptian	222	227	219	217	122
W. Indian, W African, E African, etc	158	122	117	112	194
TOTAL	*2,591*	*2,570*	*2,863*	*2,180*	*4,076*

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

DESCRIPTION	10 July 1936	3 July 1936	26 June 1936	19 June 1936	AVERAGE June 1936				
					June 1936	July 1935	July 1934	Commercial Season 1) 1934-35	1933-34
Wheat.									
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengö p. quintal)	15,65	15.27	14.37	14.57	14.54	15.45	7) * 15,75	16.67	9.70
Braila: Good quality (lei p. quintal)	7) 415	7) 400	n. q	n. q	n q.	* 340	n. q.	* 402	* 357
Winnipeg: No 1 Manitoba (cents p. 60 lb.)	95 1/8	88	81 3/4	81 1/2	79 3/4	81 5/8	81 3/4	81 7/8	67 3/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	114	n. 104 1/2	n. 99	93	94 1/2	94 1/2	99	104 1/4	89 1/8
Minneapolis: No. 1 Northern (cents p. 60 lb.)	132 3/8	121 1/4	114 1/4	113 3/8	108 1/4	108 3/8	104	110 7/8	89 3/8
New York: No. 2 Hard Winter (cents p. 60 lb.)	130 1/4	122 7/8	115 1/8	113 5/8	110 1/2	104 7/8	102 3/4	113 1/8	98 3/4
Buenos Aires (*a*): Barletta, 80 kg p hectol. (paper pesos p. quintal)	10 40	10.20	10.00	10 00	10.00	6.79	6.55	6.86	5.85
Karachi: White Karachi 2% barley, 1 ½ % impurities (rupees p. 656 lb.)	25-8-0	24-12-0	24-5-0	24-2 0	24-3-3	22-6-3	21-7-0	22-5-9	22-2-4
Berlin: Home grown (free at Brandenburg stations; Rm. p. quintal) 2)	21 40	21 40	21 40	21.40	21.40	20.80	7) 19.50	20.29	18.65
Hamburg (c. i. f.; Rm. p. quintal):									
No. 1 Manitoba 3)	9 93	9 52	9 34	8.86	8 98	8 59	9 02	8.95	7.94
Barusso (80 kg. p. hl)	9 29	9 14	9 00	8 99	8 95	6 38	6 44	6.50	6.22
Antwerp (francs p. quintal)									
Home-grown	113 00	110 00	110 00	110.00	109.60	80.35	74 50	69.10	63.00
No. 1 Manitoba (Atlantic) (in bond)	112 50	106 00	107.00	100 75	101 95	100 35	76 85	86.10	67.65
Barusso (in bond)	106 50	104 50	105.00	102 50	104 05	75 10	52 20	60.90	53.00
Paris: Home-grown (delivery regional depots, 76 kg p. hl.; frs. p. quintal) 4)	104 25	103 00	96 50	99 75	98 30	73.25	133 50	91.50	125.65
London (Mark Lane): Home-grown (sh. p 504 lb. on the farm)	31 6	n. 30/6	30/-	29 -	29/6	25/-	22 3	22/4 1/8	20/10
Liverpool and London (c i f, parcels, shipping current month; sh. p. 480 lb)									
French (on sample)	27 10 1/2	26/7 1/2	25 7 1/2	24/9	24/11	18/9 3/4	* 20/1 1/2	* 19/8 1/4	n. q.
South Russian (on sample)	n q.	n. q.	n. q	n. q.	n. q.	n. q.	n. q.	n q.	* 19/5 1/8
No 1 Northern Manitoba (Atlantic)	34 -	32/0 3/4	31/6	29/9 3/4	30/-	30/4	30/9	31/7 3/4	26/9
No. 1 Northern Manitoba (Pacific)	33 6	31/9	31 -	29/4 1/2	29/9 1/4	28/11 1/2	30/6 1/4	31/2 3/4	26/7
No. 3 Northern Manitoba (Pacific)	32/4 1/2	n. q.	29/7 1/2	28/4 1/2	28/5 1/2	26/3 1/2	28/2 1/4	28/5 1/4	24/5 3/4
White Pacific	n. q.	n. q	n q	n. q	n. q	n. q.	n. q.	n. q.	* 20/5
Rosafé (afloat) 5)	n. q.	n. q	n q	n. q.	n. q.	* 22/4	21/8	22/3 1/8	19/5 1/8
West Australian (cargoes)	n q	n q.	8) 30/10 1/2	8) 30/-	8) 29/11 1/2	26/3	8) 25/9 3/4	26/3 3/4	* 23/10 1/2
New South Wales (cargoes)	n. q	n q	8) 30/9	n q.	8) * 30/1 1/2	25/3	* 25/10 1/2	* 25/7	* 24/-
Milan (*b*): Home-grown, soft, "Buono mercantile" 76-78 kg. p. hl. (lire p. q.)	119.50	119.50	119.50	119.50	119.50	92 10	82.00	95.80	83.85
Genoa: Sicilian Durum (c.i.f., lire p quint.)	n q	n. q.	n. q.	n. q.	n. q.	n. q.	7) 102 35	* 113.05	107.85
Genoa (c i f; U. S. $ p quintal):									
No. 2 Manitoba (Pacific)	n q	n. q.	n. q.	n. q.	n. q.	n. q.	3 32	* 3.38	* 2.87
No 2 Canadian Durum 1 6)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q	3 66	* 4.09	3.11
Bahia Blanca, 79 kg. p hl. (sh p 1000 kg.)	n. q.	n. q	n. q	n. q.	n. q.	n. q.	108 -	* 111/-	* 93/6
Rye.									
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 2)	17 70	17.70	17.70	17.70	17.70	16.80	16.00	16.29	15.34
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg p hl.	5 49	5.41	5.30	5.37	5.35	4.42	5.33	5.76	4.76
Budapest: Pest rye (pengö p. quintal)	11 70	11.95	12.05	12.10	12.09	11.22	7) * 9 25	12.08	5.24
Warsaw: Good quality (zloty p. quintal)	12 87	14.62	15 12	15.12	15 09	12.12	14.25	14.82	14.32
Winnipeg: No. 2 (cents p. 56 lb.)	61	53	47 1/8	45 5/8	44	34 7/8	58 1/8	52 7/8	47 3/8
Minneapolis: No. 2 (cents p. 56 lb.)	77 3/4	70 1/8	62 5/8	61 1/4	57 7/8	42 3/8	72 3/8	67 7/8	63
Groningen (*c*): Home-grown (fl. p quintal)	. .	...	.	.	...	7.20	n q	7.35	6.65

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal* — *a*) Thursday prices. — *b*) Saturday prices. — *c*) Prices on preceding Tuesday.

1) August-July. — 2) 1 Oct. 1933-15 Aug. 1934, for wheat, and 1 October 1933-15 July 1934, for rye, minimum prices; subsequently, fixed producers' prices for the *price region* of Berlin city. See *Govt. Measures*, No. 2, p. 57. — 3) Before Nov. 1934, No. 2 Manitoba. — 4) 16 July 1933-25 December 1934, minimum prices on the farm increased by transport costs from farm to Paris stations, then spot quotations in the free market until 31 August 1935, subsequently prices in the regulated market, delivery current month. — 5) Aug-Oct 1933, 63 ½ lb. p bushel; Nov.-Dec. 1933, 63 lb.; year 1934, 64 lb.; subsequently, 63 ½ lb. — 6) Before Dec 1934, No. 2 Can. Dur — 7) New crop — 8) Afloat

DESCRIPTION	10 July 1936	3 July 1936	26 June 1936	19 June 1936	AVERAGE June 1936	July 1935	July 1934	Commercial Season 1)	
								1934-35	1933-34
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	15.87	15.87	15.87	15.87	15.87	15.25	* 18.50	19.60	* 15.87
Braila: Average quality (lei p. quintal).	206	200	235	228	226	n. 180	205	* 244	* 154
Prague: Malting, av. qual. (crs. p. quintal) 2)	6) 144.50	6) 144.50	135.50	135.50	135.50	n. q.	* 128.00	131.70	* 94.20
Winnipeg: No. 4 Western (cents p. 48 lb.).	49 1/4	41 1/4	36 1/2	36 1/8	35 5/8	31 1/8	44	45 5/8	36 7/8
Chicago: Feeding (on sample; cents p. 48 lb.)	53	53	42	50	47	42	63 3/4	72 1/2	54
Minneapolis: No. 2 Feeding (c. p. 48 lb.)	62	50	44	36	7) 35 3/4	40	52 1/4	67 1/2	45 1/8
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3) 4).	18.00	18.00	18.00	18.00	18.00	16.35	* 15.40	16.16	* 16.17
Antwerp: Danubian (in bond; francs p. q.)	76.00	76.00	75.50	76.50	76.60	73.25	62.90	69.45	49.35
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	27/6	32/6	32/6	32/6	32/6	n. 28/6	n. q.	38/-	* 39/5
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	8) 16/6	8) 14/10 1/2	8) 14/9	8) 15/-	8) 14/7 3/4	13/3 3/4	8) 17/9 3/4	* 19/2 1/4	* 13/9 1/2
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	n. q.	* 15/-	9) 13/4 1/2	* 17/6	n. q.	* 13/7 1/2
Canadian No. 3 Western	21/-	19/4 1/2	18/-	17/5 1/4	17/5 1/4	16/3 1/8	20/0 1/2	21/10 1/2	17/9 1/2
Californian malting (sh. p. 448 lb.)	28/-	25/-	9) 23/9	9) 23/6	9) 23/6 3/4	* 23/6	24/8 1/4	* 31/6	22/7 3/4
Plata (64-65 kg. p. hl)	17/-	16/10 1/2	16/7 1/2	16/8 1/4	16/7 1/4	10) 14/-	18/6 1/4	18/4	14/2 1/2
Persian (Iraquian)	16/3	15/3	15/-	15/-	* 14/11 1/2	10) 13/5 1/4	11) 17/3 3/4	18/6	* 14/0 3/4
Groningen *a*): Home-grown, winter (fl. p. q.)	...	...	...	...	...	4.75	* 5.01	5.30	4.44
Oats.									
Braila: Good quality (lei p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 149
Winnipeg: No. 2 White (cents per 34 lb.)	40 5/8	34 1/4	32 3/4	33	12) 33 3/8	43 3/8	38 5/8	42 3/4	33 7/8
Chicago: No. 2 White (cents per 32 lb.)	41 3/4	34 3/4	34 1/4	31 1/4	30 3/4	36 1/2	45 7/8	50 7/8	37 1/4
Buenos Aires *b*): Current quality (paper pesos p. quintal)	6.15	5.85	5 85	5.85	5.85	5.22	4.56	5.39	3.65
Berlin: Home-grown (free at Brandenburg stations; Rm p. quint.) 3)	17.60	17.60	17.60	17.60	17.60	16.90	17.41	16.39	14 92
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal).	81.85	80.85	78.85	81.10	80.35	37.85	53.75	48.50	48 00
London (Mark Lane): Home-grown white (sh. p. 336 lb., on farm)	19/-	19/-	19/-	19/-	18/9	23/-	19/6	20/10	18/1 1/2
Liverpool and London (c.i.f, parcels; shipping current month; sh. p. 320 lb.):									
Canadian, No 2 Western (Pacific) 5)	19/3	18/9	17/6	17/3	17/6 1/4	20/11 1/2	19/2 3/4	20/10 1/2	* 17/4
Plata, (f. a. q.)	n. 13/7 1/2	n. 13/6	13/3	n. 13/4 1/2	13/4	12/10 3/4	11/7 1/2	13/0 1/2	10/2
Milan (*c*) (lire p. quintal):									
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	* 67.50	51.35	61.25	50.70
Foreigu	91.00	91.00	92 00	92.00	92.25	68.50	50.85	60.45	50.05
Maize.								1935-36	1934-35
Braila: Average quality (lei p. quintal)	248	n. 242	242	240	241	240	* 272	238 1/2	* 220
Chicago: No. 3 Yellow (cents p. 56 lb.)	87 1/8	72 3/4	67 1/8	65 3/4	13) 64 1/4	84	* 63 5/8	72 5/8	78 1/8
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	10) 5.17	10) 5.00	10) 5.00	10) 5.00	10) 5.00	4.40	5.53	4.51	5.72
Antwerp (in bond; francs p. quintal):									
Yellow Plata								56.25	53.70
Cinquantino (Argentine "Cuarentino")	10) 68.00	10) 65.00	10) 65.00	10) 64.00	10) 64.25	53.95	52.10	60.45	58.25
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):	10) 74.00	10) 69.50	10) 68.50	10) 67.25	10) 67.20	57.25	56.25		
Danubian	19/7 1/2	18/6	18/6	18/4 1/2	18/1 1/2	n. q.	* 19/4	* 16/11	* 20/-
Yellow Plata	19/4 1/2	18/3	18/1 1/2	18/3	17/11 1/4	16/0 1/4	19/1	16/0 1/2	19/8 1/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	16/8	n. q.	* 17/-	21/4 1/2
Milan (*c*): « Alto Milanese » (lire p. quint.)	88.50	87.50	85.50	85.50	85.50	78.25	64.25	81.75	58.50

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. From August 1935, good quality, not less than 68 kg. per hectolitre. — 3) From 16 July 1934 for fodder barley and from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, N° 2, p. 57. — 4) Sept. 1933-June 1934, spring barley, average quality. — 5) June-Dec 1934 and from May 1935, Atlantic. — 6) Monopoly selling price. — 7) 12 June (amended): 31. — 8) Shipping Aug.-Sept. — 9) Shipping July-Aug; new crop. — 10) New crop. — 11) Shipping Aug. — 12) 12 June (amended): 33 1/8 — 13) 12 June (amended): 61 3/4.

DESCRIPTION	10 July 1936	3 July 1936	26 June 1936	19 June 1936	AVERAGE June 1936	AVERAGE July 1935	AVERAGE July 1934	AVERAGE Commercial Season 1) 1935	AVERAGE Commercial Season 1) 1934
Rice (milled).									
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	58,50	58.50	58.50	58.50	58.50	57.75	44.75	56.60	46.95
Milan (*b*) (lire p. quintal):									
Vialone, oiled	176.00	176.00	176.00	177 50	176.35	147.75	178.50	159.20	177.10
Maratelli, oiled	159.00	159.00	159.00	159.00	157.85	128.60	135.10	136.60	138.05
Originario, white	125.00	123.00	125.00	125.00	124.35	124 85	103.60	121.75	102.80
Rangoon: No.2 Burma (rupees p. 7500 lb.)	237½	240	242½	245	245	263¾	216¼	253½	201⅞
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white, 25 % brokens	...	...	4.33	4.46	3) 4.36	4.40	3.15	4.18	3.25
No. 2 Japan, 40 % brokens	...	...	4.09	4.22	4) 4.13	4.09	2.99	3.96	3.09
Marseilles (*a*): No. 1 Saigon (c. i. f.; frs. p. quintal)	59.50	58.00	57 50	57.50	57 10	56.75	* 45.35	54.80	45.95
London (*a*) (c. i. f.; shillings p. cwt.).									
No. 3 Spanish Belloch, oiled.	11/4½	11/6	10/6	10/6	10/6	13/–	9/9	* 12/7	*10/9
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*11/9	* 14/0½	11/10½
American Blue Rose, extra fancy	n. q.	n. q.	n. q.	n. q	n q	* 15/3	17/4	* 15/5¾	17/3½
No. 2 Rangoon or Bassein (Burma)	7/6	7/5¼	5) 7/6¾	5) 7/6¾	7/7	7/9½	7/–	7/8	6/7¾
No. 1 Saigon	8/–	7/7½	5) 7/7½	5) 7/7½	5) 7/5¼	7/7½	6/0¼	7/5¼	6/3¼
Siam Super, white	8/6	8/7½	5) 8/7½	5) 8/9	8/9¼	9/7½	7/4½	9/2¾	7/5
Tokyo: Chumai (brown Japanese, average quality yen p. koku)	32 00	32.10	32 30	32.20	32 07	29.85	25.87	29.87	26.09
Linseed.									
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	15,00	14.50	14.37	14 20	14 18	11.74	13.65	12.28	12.74
Bombay: Bold (rupees p. cwt)	7-10-0	7-6-6	7-7-6	7-4-0	7-3-10	6-8-3	6-12-4	6-10-8	6-7-8
Antwerp: Plata (in bond, frs. p quint.).	164 00	160 00	159 50	158 00	157 10	124 00	112.25	127.55	107.60
London (c. i. f , £ p. long ton):									
Plata (delivery Hull)	11-13-9	11-5-0	11-2-6	11-1-3	11-0-4	9- 4-4	10-8-1	9-13-2	10- 0-8
Bombay bold	13-12-6	13-8-9	13-7-6	13-2-6	13-1-3	11-15-0	12-3-1	12- 5- 5	11-17-0
Duluth. No. 1 Northern (futures market quotations; cents p. 56 lb)	206	188	6) 177	6)n 173	6) 173⅛	157⅛	189	172¼	186⅛
Cottonseed.								1934-35	1933-34
Alexandria (piastres p. ardeb):									
Upper Egypt	n. 83 5	n. 81 7	n. 81 5	n 72 6	n 74 4	65 7	n 43.7	62.0	41.8
Sakellaridis	n 77 5	n 75 7	75 5	n 65 8	67 8	62 7	n 40.1	57.7	* 37.5
London: Sakellaridis (c.i f., delivery Hull, £ p. long ton)	n. 7-10-0	n. 7-10-0	n 7-8-9	n. 6-12-6	n 6-10-0	n. 6-1-3	4-8-5	5-18-7	4-5-11
Cotton.									
New Orleans: Middling (cents p. lb)	13 44	12 55	12 50	12 32	12 14	12.16	12.69	12.47	10.90
New York: Middling (cents p. lb)	13 65	12 49	12 43	12 23	12.06	12.27	12.81	12.46	11.07
Bombay (rupees p. 784 lb.)									
Broach, f. g. (futures market quotations)	239¼	223½	7) 222¼	7) 218½	7) 217½	233½	212¼	230¾	197
Broach, f g. (spot)	239	225	222	218	217¼	239¾	215½	233¼	195⅜
Oomra, fine (spot)	220	211	211	209	206¼	216¾	195¾	208⅛	175⅜
Alexandria (talaris p. kantar):									
Sakellaridis, f. g. f.	18.15	17 40	16 95	16 70	16 47	14.66	15.37	15.20	14.44
Ashmuni-Zagora, f. g. f 2)	15,05	14.75	14 40	13,85	13 89	13.70	12 89	13.34	11.63
Bremen: Middling (U. S. cents p. lb)	15 55	14.77	14 64	14.37	14 31	14 25	14.54	14.38	12.56
M. g. Broach, f. g. (pence p. lb.)	n. 5.95	n. 5.80	n. 5.75	n. 5 60	n. 5.57	n 6.30	n. 5 37	n. 6.04	n. 4.81
Le Havre: Middling (Gulf; frs p. 50 kg).	255 50	239 00	244 00	245 50	244.00	248.87	252.25	250.75	229.85
Liverpool (pence per lb.):									
Middling, fair	n. 8 68	n. 8.28	n. 8 28	n. 8 10	n. 8 02	n. 7.82	n. 8.00	n. 7 95	n. 7.11
Middling	7.58	7.18	7 18	7 00	6.92	6.92	6.95	6 94	6.02
São Paulo, g. f.	7.48	7.18	7.23	7.20	7 08	n. 7.05	6.90	6.99	6.13
Broach, good staple, f. g.	n. 6.04	n. 5.72	n 5 65	n. 5.52	n. 5.44	5.93	5.17	5.61	4.62
C. P. Oomra, superfine	6 15	5.90	5.72	5.59	5.51	6.14	5.45	5 73	4.92
Egyptian Sakellaridis, f g. f.	10 14	9 68	9.25	9.03	8.95	8.03	8.47	8 52	8.07
Upper Egyptian, f. g. f.	8.42	8.24	8 06	8 01	7.92	7.42	7.22	7.55	6.64

* Indicates that the product, was not quoted, during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) From August 1935, Ashmuni, f. g. f quality only. — 3) 12 June 4.43; 5 June: 4.27. — 4) 12 June: 4.18; 5 June: 4.02. — 5) Shipping July-Aug. — 6) July futures. — 7) July-Aug. futures.

Description	10 July 1936	3 July 1936	26 June 1936	19 June 1936	Average				
					June 1936	July 1935	July 1934	Année commerciale	
								1935	1934
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt):									
English, N° 1, lean sizable	89/-	88/-	92/-	93/-	91/6	94/7	87/3	89/11	91/2
Danish, N° 1, sizable	91/-	91/-	93/-	93/-	92/-	94/-	86/-	88/6	87/11
Irish, N° 1, sizable	90/-	89/6	92/-	92/-	90/10	95/7	90/-	88/8	90/5
Lithuanian, N° 1, sizable	82/-	82/-	85/-	85/-	83/9	85/-	80/6	82/1	82/-
Dutch, N° 1, sizable	87/-	87/-	89/-	89/-	87/9	91/9	81/7	85/4	84/-
Polish, N° 1, sizable	82/-	82/-	85/-	85/-	83/9	83/-	79/6	80/-	80/11
Swedish, N° 1, sizable	87/-	87/-	89/-	89/-	87/9	92/-	82/6	85/2	84/4
Canadian, N° 1, sizable	82/-	82/-	85/-	85/-	83/9	83/-	78/3	79/3	80/3
Butter.									
Copenhagen (*b*): Danish (crs p quint.)	218.00	200.00	200.00	197.00	199.00	169.50	138.50	192.30	160.75
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p.kg) 1)	55	55	55	57	57 1/4	43	39 1/2	48 7/8	44 3/8
Germany (*c*) (fixed prices; Rm. p. 50 Kg) 2):									
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	127.25	130.00	129.04
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	117.00	123.00	120.87
London (*d*): English creamery, finest quality (shillings p cwt.)	128/4	128/4	128/4	128/4	128/4	113/10	109/8	119/6	109/6
London, Provision Exchange (*a*) (shillings, p. cwt):									
Danish creamery, unsalted	124/-	117/-	117/-	114/6	115/4	102/3	88/6	112/9	98/8
Estonian, unsalted	107/-	99/6	99/-	104/6	* 101/10	83/6	62/6	* 81/11	* 67/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	62/6	* 86/1	* 69/3
Dutch creamery, unsalted	106/-	99/-	101/-	106/-	104/-	83/3	69/3	93/4	80/4
Argentine, finest, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 82/10	* 68/3
Siberian salted	n. q.	n. q.	n. q.	n. q.	n. q.	83/7	62/6	* 90/7	* 66/-
Australian, finest, salted	112/6	106/-	104/6	106/6	106/4	87/3	69/1	89/-	70/2
New Zealand, finest, salted	113/6	107/-	105/6	107/6	107/7	90/-	74/9	91/11	72/7
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1933 3)	865.00	855.00	835.00	815.00	815.00	720.00	n. q.	724.30	* 989.00
Parmigiano - Reggiano, 1st quality, production 1934 3)	815.00	810.00	800.00	780.00	781.25	630.00	740.00	614.60	806.00
Green Gorgonzola, mature, choice	567.50	560.00	560.00	535.00	533.75	492.50	415.00	508.90	412.60
Rome: Roman Pecorino, choice (lire p q) 4)	1,187.50	1,187.50	1,200.00	1,200.00	1,206.25	834.35	615.00	865.50	658.65
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	18.50	18.50	20.00	20.00	20.19	12.37	21.50	14.84	18.64
Gouda: Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p. 50 kg.)	21.00	21.00	22.00	22.00	21.62	17.00	21.00	19.75	22.52
Kempten (*c*) (Rm. p 50 kg.)									
Soft cheese, green, 20 % butterfat	26.00	26.00	26.00	26.00	26.00	26.00	21.00	26.00	23.25
Emmenthal from the Allgau, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	77.00	71.00	77.00	71.50
London, Provision Exchange (*a*) (shillings, p cwt.):									
English Cheddar, finest farmers	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	66/6	* 77/8	* 83/5
English Cheshire, Nat Mark Selected.	66/6	67/8	67/8	70/-	67/11	55/5	57/2	80/5	83/4
Italian Gorgonzola (*d*)	n. q.	n. q.	n. q.	n. q.	n. q.	99/8	80/9	* 102/2	82/9
Dutch Edam, 40 + (*d*)	42/-	42/-	44/6	45/-	44/1	34/1	56/3	44/4	54/5
Canadian, finest white	69/-	68/6	67/-	66/-	66/-	63/1	58/-	60/3	54/-
New Zealand, finest white	60/3	58/6	58/-	59/9	59/6	44/5	48/3	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week.

1) Home prices are increased by a consumers'-duty which was, from 7 to 13 June and from 28 June fl. 0 90; 14 to 27 June fl 0 85 — 2) See note on page 306 of the *Crop Report* April 1934. — 3) Prices of 1933-cheese are compared, for the preceding years, with those of cheese made in 1932 and 1931 respectively; prices of 1934-cheese with those of cheese made in 1933 and 1932. The yearly averages refer to the périods from Sept. to August. — 4) From 27 September 1935, export price.

DESCRIPTION	10 July 1936	3 July 1936	26 June 1936	19 June 1936	AVERAGE June 1936	July 1935	July 1934	Commercial Season 1) 1935	1934
Eggs.									
Antwerp, auction: Belgian, average qual. (frs. p. 100)	40.00	41.00	40.00	43.00	41.75	44.25	32.00	48.37	42.80
Denmark (*a*): Danish for export (crs. per quintal)	80.00	76.00	76.00	76.00	76.00	78.80	74.50	106.75	103.60
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):									
Fixed price for export into Germany	3.15	3.05	2.90	3.10	7) 2.96	2.89	3.12	3.75	3.96
Price for other destinations	2.80	2.70	2.60	2.75	7) 2.59	2.54	2.55	2.97	3.34
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	...	...	74.00	75.33	8) 75.33	90.00	75.00	104.43	106.50
Berlin (*c*): German, big, new laid (Rm. p. 100):									
marked «G I S», 65 gr. each	9.25	9.25	9.25	9.25	9.25	10.20	9.25	10.57	10.37
marked «G I B», 55/60 gr. each	8.25	8.25	8.25	8.25	8.25	8.95	7.75	9.34	9.03
London, Egg Exchange (*d*) (sh. p. great hundred):									
English, National Mark, specials	14/6	12/6	13/9	13/9	13/1 1/4	14/5 1/4	13/7 3/4	15/9	15/5
Belgian, 15 ½ lb. p. 120	8/6	n. q.	8/3	8/3 3/4	* 8/3 1/4	* 9/9 3/4	n. q.	*11/3 1/4	* 11/0 3/4
Danish, 18 lb p 120	10/9	10/6	10/3	10/4 1/2	10/1 1/2	10/6 1/2	9/9	12/5	12/5 3/4
Northern Irish, 18 lb. p. 120 2)	13/10 1/2	12/1 1/2	12/6	13/1 1/2	12/1 3/4	*13/5 1/4	12/1	15/1 1/2	* 12/9 1/2
Dutch, all brown, 18 lb. p. 120	11/9	11/7 1/2	12/-	11/7 1/2	11/5 1/2	*10/11	*11/2	13/2 1/4	13/5
Polish, 51/52 grams each	6/3 3/4	6/1 1/2	6/5 1/4	6/3 3/4	6/1 3/4	6/6	6/-	* 7/1 1/4	6/10 3/4
Chinese, violet	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 8/10 1/2	* 8/3 3/4
Austialian, 16 lb. p 120	n. q.	n. q.	n. q.	n q	n q.	n. q.	n. q.	*11/2 1/2	* 11/5 3/4
Maritime freights (RATES FOR ENTIRE CARGOES).								1934-35	1933-34
Shipments of Wheat and Maize.									
Danube to Antwerp/Hamburg. (shill. per long ton)	15/9	15/9	15/9	15/9	* 15/9	n. q.	n. q.	* 13/11	* 14/1
Black Sea to Antwerp/Hamb (shill. per long ton)	9/6	9/6	9/6	n. q.	n. q	9/4 1/2	9/4 1/2	* 9/11	* 10/3
St. John to Liverpool 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 1/6	* 1/11
Port Churchill to United Kingdom (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/9	* 2/9
Montreal to United Kingdom (shill. per 480 lb.)	2/-	2/-	2/-	2/-	2/-	n. 1/6	1/3	* 1/6 3/4	* 1/4 1/2
Gulf to United Kingdom 3). (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	2/6	2/6	2/6	* 2/6 3/4
New York to Liverpool 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	1/6	1/6	1/6	1/6
Northern Range to U K./Cont. (shill. per 480 lb.)	2/-	2/-	2/-	2/-	2/-	1/6	n. q.	n. q.	* 1/9
North Pacific to United Kingdom (sh. per long ton)	n. q.	n. 19 3	19/3	19/3	19/3	n. q.	n. q.	* 18/1 1/2	* 20/1
Vancouver to Yokohama 3) (U.S.A. $ p. short ton) 4)	...	...	..	...	...	...	2.32	...	2.41
La Plata Down River 5) /Bahia Blanca to U. K./ Continent (shill. per long ton)	n. 16/9	n. 16/19	n. 16/9	n. 16/9	n. 16/9	15/9	14/5 1/4	14/11	14/1
La Plata Up River 6) /Necochea to U.K./Continent (shill. per long ton)	18/-	18/-	18/-	18/-	18/-	17/-	15/7 1/2	16/2	15/9
Western Australia to U. K./ Continent (shill. per long ton)	9) 28/-	9) 28/-	9)n.28/-	9) 28/-	9) 28/-	* 24/6	24/3	24/6	23/10 3/4
Shipments of Rice.								1935	1934
Saigon to Europe (shill. per long ton)	23/9	23/9	3) 21/-	3) 21/-	3) 21/-	19/-	23/6	* 23/5	24/2 3/4
Burma to U. K./Continent (shill. per long ton)	n. q.	n. q.	23/-	23/-	10) 23/-	n. q.	n. q.	* 21/8	* 23/3

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) From 28 Feb. "Extra special" quality. — 3) Rates for parcels by liners. — 4) May-Oct. 1934 and from 25 Jan, 1935, Canadian $. — 5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 7) See page 531 — 8) 11-16 May: 71.50; 18 May-13 June: 76.00; June average: 72.87. — 9) South Australia. — 10) Preceding weeks of June (revised): 23/-.

AVERAGE MONTHLY PRICES BY COUNTRIES 1)

Groups	Description	Average							
		June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 2)	
								1934-35	1933-34
	GERMANY (Prices in Reichsmarks per quintal)								
A I	†Wheat (Berlin) 3)	21.40	21.20	21.20	20.60	20.77	19.30	20.18	18.58
	†Rye (Berlin) 3)	17.70	17.50	17.30	16.90	16.77	16.20	16.22	15.26
	†Barley, feeding (Berlin) 3) 4)	18.00	17.80	17.60	17.20	16.67	16.40	* 16.14	16.17
	†Oats (Berlin) 3)	17.60	17.40	17.20	16.80	16.87	16.45	16.43	14.62
	§Potatoes, red (Berlin) 5)	5.30	5.30	5.20	4.90	4.80	3.68	* 4.95	* 3.04
A II	†Oxen, live weight (Berlin)	84.00	84.00	84.00	84.00	81.53	65.20	76.28	64.67
	Calves, live weight (Berlin)	102.40	96.60	107.20	90.93	78.80	68.80	68.75	68.63
	†Pigs, (220-265 lb.), live weight (Berlin)	101.00	101.00	101.00	101.00	91.13	22.13	93.87	85.03
	Milk, fresh (Berlin)	14.60	14.60	14.60	14.63	14.50	14.50	14.50	14.07
	†Butter with quality mark	260.00	260.00	260.00	260.00	260.00	252.84	260.12	253.54
	†Cheese, Emmenthal variety (Kempten)	160.00	160.00	160.00	160.00	151.83	142.00	146.75	142.25
	†Eggs, new laid, marked « GIS » (per 100) (Berlin)	9.25	9.25	9.25	10.37	9.00	9.27	10.27	10.78
B I	Basic slag (Aachen) 6)	0.239	0.212	0.240	0.240	0.223	0.246	0.240	0.253
	§Superphosphate of lime, 18 % (Hildesheim) 6)	0.277	0.293	0.293	0.291	0.288	0.296	0.288	0.302
	§Potash salts, 38-42 % (mine stations) 6) 7)	6.27	6.51	6.86	6.86	6.55	0.164	* 6.70	0.168
	Sulphate of Ammonia 6)	0.710	0.710	0.710	0.703	0.660	0.710	0.651	0.675
	Nitrate of lime 6)	...	...	...	...	0.990	0.990	0.952	0.952
B II	Wheat-bran (Hamburg)	12.25	12.25	12.25	12.25	12.30	11.77	12.13	11.06
	Linseed cake (Hamburg)	17.30	17.30	17.30	17.30	14.90	16.77	15.62	16.67
	Coconut cake (Hamburg)	17.40	17.40	17.40	17.40	14.90	16.66	15.44	16.58
	Groundnut cake (Hamburg)	16.90	16.90	16.90	16.90	14.10	16.37	14.66	15.89
	Crushed soya extraction residue (Hamburg)	15.50	15.50	15.50	15.50	12.60	15.38	13.19	14.49
	BELGIUM (Prices in Belgian francs per quintal)								
A I	Wheat (Antwerp)	109.60	108.60	108.00	106.00	80.65	62.85	68.60	63.90
	Rye (Antwerp)	66.85	66.85	67.40	69.20	78.30	48.45	70.65	45.75
	Barley (Antwerp)	86.50	85.60	84.30	83.10	96.95	62.10	82.45	58.45
	Oats (Antwerp)	96.50	96.00	95.00	91.10	95.95	63.05	76.25	60.95
A II	Oxen, live weight (Curegem-Anderlecht)	508.00	526.00	500.00	476.65	477.35	482.00	457.00	503.00
	Calves, live weight (Curegem-Anderlecht)	690.00	650.00	735.00	747.35	601.35	724.00	641.00	733.00
	Pigs, live weight (Curegem-Anderlecht)	566.00	557.00	600.00	620.65	492.65	391.00	530.00	496.00
	Butter (Antwerp)	1,596.00	1,590.00	1,778.00	2,093.00	1,586.00	1,537.00	1,782.00	1,875.00
	Eggs (per 100) (Antwerp)	41.75	35.00	33.25	48.75	32.60	28.95	42.80	45.95
B I	Basic slag (Brussels) 6)	1.60	1.58	* 1.60	1.60	* 1.60	1.30	1.35	1.55
	Superphosphate of lime (Brussels) 6)	1.60	1.60	1.60	1.60	1.68	1.80	1.50	1.83
	Sylvinite-Kainite, 14 % (Brussels)	27.00	27.00	27.00	25.35	15.00	25.00	14.65	25.00
	§Nitrate of soda, 15 ½ % (Brussels)	108.25	108.25	108.25	106.75	97.75	95.00	93.25	92.65
	§Sulphate of ammonia, 20 % (Brussels)	93.00	93.00	93.00	91.50	82.50	82.50	79.10	79.10
B II	Maize, Plata (Antwerp)	64.25	63.55	61.60	55.65	62.40	49.55	55.55	47.85
	Linseed cake (Brussels)	88.00	86.50	90.50	91.35	89.15	81.10	89.05	84.25
	Coconut cake (Brussels)	96.00	96.00	98.00	99.50	94.00	72.30	85.35	74.80
	Groundnut cake (Brussels)	96.00	100.00	100.00	100.00	93.00	71.50	84.40	77.60
	Palm-kernel cake (Brussels)	n. q.	n. q.	n. q.	n. q.	n. q.	77.25	* 82.80	75.80
	DENMARK (Prices in Danish crowns per quintal)								
A I	Wheat (Copenhagen)	15.00	14.80	14.35	13.53	11.03	12.13	11.65	11.96
	Barley (Copenhagen)	12.92	12.93	12.11	11.63	12.55	12.53	13.48	12.13
	Oats (Copenhagen)	14.77	14.56	13.50	12.29	13.16	12.34	13.31	12.12
	†Cows, live weight (Copenhagen)	37.00	37.00	37.00	37.00	33.00	22.63	29.93	21.16
A II	†Pigs, live weight	167.00	172.00	175.60	169.67	166.67	147.03	161.30	141.00
	†Butter (Copenhagen)	199.00	173.60	176.50	217.00	157.97	130.18	179.65	161.05
	†Eggs	76.00	75.00	* 64.00	110.10	67.47	63.53	104.90	101.05

---

* Indicates that the product was not quoted during part of the period under review. — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*.

1) Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold by the farmer, also of fertilizers (B I) and concentrated feeding stuffs for livestock (B II) bought by the farmer. In cases where the market is not indicated, the price is the average for the country. — 2) July to June. — 3) See notes (2) and (3) on pp. 515/516. — 4) See note (4) on p. 516. — 5) From 1935, red and white potatoes. — 6) Prices per unit of fertilizer material in 100 kg. — 7) From 16 October 1934, price, at buyer's station, per 100 kg. of potash manure salt 40 %.

DENMARK *(continued)*

Groups	Description	Average June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
B I	Superphosphate 18 %	6.35	6.35	6.35	6.32	6.45	6.45	6.28	6.28
	Potash salts 40 %	13.95	13.95	13.95	13.78	12.05	14.05	11.85	13.67
	Sulphate of ammonia	16.25	16.25	16.25	15.90	16.20	16.00	15.47	15.29
	Nitrate of lime	16.20	16.20	16.20	15 85	16.15	15.85	15.58	15.13
B II	Rye, imported (Jutland)	12.80	12 80	12.76	12.53	9.84	11.78	11.25	10.50
	Maize, Plata (Jutland)	13.82	13.80	13.76	12.99	10.95	12.69	11.95	11.72
	Wheat-bran, Danish (Copenhagen)	10.90	11.10	11.00	10.15	10.07	9.57	10.80	10.03
	Cottonseed cake (Copenhagen)	13.62	13.32	13.42	13.70	13.12	11.82	14.19	13.07
	Sunflower-seed cake (Copenhagen)	13.32	12.77	12.70	13.29	12.74	10.66	14.13	12.55
	Groundnut cake (Copenhagen)	15.35	15.62	15 73	15.13	13.70	12.35	14.35	13.63
	Crushed soya extraction residue (Copenhagen)	14.77	14.65	14.62	14.61	13.09	11.60	13.71	12.97

FRANCE (Prices in francs per quintal)

Groups	Description	Average June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
A I	†Wheat (Paris) 1)	98.30	94.25	99.55	93.15	79.65	130 50	96.50	124.00
	Rye (Paris) 2)	87.00	80.00	81.00	78.35	60.35	77.35	* 61.35	72.25
	Barley, malting (Paris) 2)	88.00	85.00	81.00	78.00	61.35	77.35	65.65	79.25
	†Oats (Paris)	80.35	82.00	77.15	72.25	46.00	45.20	49.80	48.55
	§Wine, red, 10° (hectol.) (Montpellier) 3)	9.00	8.00	7.60	6.80	4.80	102.65	6.60	n. 100.00
A II	†Beef, dead weight (2nd quality) (Paris)	589.00	581.00	580.00	5) 526.00	500.00	551.00	488.00	531.00
	†Mutton, dead weight (2nd quality) (Paris)	918.00	953 00	1,002.00	6)1,014.00	994.00	1,176.00	1,032.00	1,099.00
	†Pigs, live weight (Paris)	560.00	559.00	519.00	7) 467.00	343.00	412.00	370.00	502.00
B I	§Basic slag, 18 % (Thionville)	18.55	18 55	18.55	18.55	20.70	22.50	21.65	22.50
	§Superphosphate 14 % (North and East)	23.75	24.25	24.25	24.25	26.75	27.25	26.75	27.25
	§Sylvinite, rich, 18 %	16.30	14.80	14.80	14.75	15.00	16.30	15.00	16.30
	Nitrate of soda (Dunkirk)	79.00	79.00	79.00	77 00	83.85	86.85	* 82.70	87.75
	Sulphate of ammonia 20,4 %	83 00	83.00	83.00	81.90	85.85	89.50	* 85.65	89.80
B II	Linseed cake (North)	69.50	62.75	63.00	66.50	55.75	63.50	67.05	65.25
	Coconut cake (Marseilles) 4)	n. c.	78.00	n. c.	* 70.50	55.15	60.00	58.75	60.00
	Groundnut cake (Marseilles)	52.50	53.00	53.00	53.00	43.00	47.35	49.15	53.35

GREAT BRITAIN (Prices in shillings and pence: "A" per cwt: "B" per long ton).

Groups	Description	Average June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
A I	Wheat	6/8 1/2	6/9 1/4	6/5 3/4	6/4	5/3 1/4	4/10 1/2	5/0 1/4	4/11
	Barley, feeding	6/10	8/1 3/4	7/4 1/4	7/11	7/1	7/6	8/3 1/2	8/9 1/2
	Oats	6/2 1/2	6/1 1/2	6/0 1/4	6/0 1/4	7/2 1/4	6/1 1/2	6/9 1/2	5/9 1/4
	§Potatoes (London)	n. c.	7/10 3/4	8/0 3/4	8/4	6/2 1/2	4/11	* 5/8 1/2	* 4/8 1/2
A II	†Beef, dead weight (London)	70/-	62/1	62/5	57/8	63/10	67/4	63/7	65/7
	†Mutton, dead weight (London)	82/6	84/3	74/1	70/8	85/5	99/2	85/9	77/3
	†Pork, dead weight (London)	n. c.	n. c.	73/6	71/8	68/6	74/1	72/11	74/11
	Butter (London)	128/4	119/-	115/9	124/10	108/6	109/8	110/8	123/1
	†Cheese, Cheddar (London)	n. c.	* 83/-	81/3	75/6	86/-	* 79/8	83/-	* 82/3
	Eggs, new laid (per 100) (London)	10/11	9/9 1/2	8/7 1/2	12/2	9/3 1/4	9/-	12/9 1/2	12/9
B I	§Basic slag 14 % (London)	43/-	43/-	43/-	43/-	43/-	43/-	43/-	43/-
	Superphosphate, 16 % (London)	56/-	56/-	56/-	56/-	56/-	56/-	56/-	56/-
	Kainite 14 % (London)	55/-	55/-	55/-	55/-	54/-	60/-	54/6	61/2
	§Nitrate of soda, 15 ½ % (London)	152/-	152/-	152/-	152/-	152/-	158/-	152/6	156/4
	§Sulphate of ammonia 20.6 % (London)	145/-	145/-	145/-	143/4	145/-	145/-	141/4	140/3
B II	Bran, British (London)	102/3	104/-	107/9	117/9	103/6	100/1	117/-	102/10
	Bran, middlings, imported (London)	104/3	101/7	100/-	103/9	102/11	92/8	115/1	94/1
	Linseed cake, English (London)	165/3	160/-	157/-	158/3	165/3	190/4	182/1	183/2
	Cottonseed cake (London)	95/9	94/-	96/-	92/9	92/-	85/11	96/1	92/-
	Palm-kernel cake (Liverpool)	125/-	125/-	125/-	122/2	125/-	117/-	124/5	117/5

---

*, †, §: See notes on page 520.

1) See note (4) on page 515. — 2) Quotation of last day of the month. — 3) From October 1934, price per degree and hectolitre. — 4) From January 1935, prices in Coudekerque. — 5) March: 557.00. — 6) March: 1,014.00 — 7) March: 507.00.

ITALY (Prices in lire per quintal)

Groups	Description	Average							
		June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
A I	†Wheat, soft (Milan)	119.50	119.50	118.75	115.95	110.45	85.50	94.95	84.15
	Wheat, hard (Palermo)	...	...	...	...	124.00	106.00	110.15	104.90
	Oats (Milan)	n. q.	96.80	98.00	98.00	n. 67.50	51.50	59.90	50.70
	†Maize (Milan)	85.50	85.10	84.50	84.35	75.10	58 45	61.55	50.80
	Rice, Maratelli (Milan)	157.85	159.00	158.25	162.30	132.10	147.60	128.00	144.10
	Hemp, fibre	...	...	...	...	358.00	283.00	284.00	273.00
	§Olive oil " Sopraffino locale " (Bari)	...	...	...	...	556.00	521.00	539.00	440.00
	§Wine, ordinary, 11° (hectol.) (Bari)	...	...	...	...	66.65	53.00	63.00	60.00
A II	†Oxen live weight (Milan	352.00	365.00	327.00	277.00	251.65	237 00	252.00	229.00
	Lamb, dead weight (Rome)	* 808.00	692.00	641.00	622.00	613.00	604.65	* 601.00	* 615.00
	Pigs, live weight (Milan)	n. q.	n. q.	n. q.	n. q.	353.65	382.00	355.00	395.00
	†Cheese (Parmigiano-Reggiano) (Milan)	781.25	751.00	740.00	701.50	623.65	750.85	629.00	857.00
	Eggs, new laid (per 100) (Milan)	37.15	37.00	37.65	44.10	29.40	26.45	36.45	40.00
	Wool, Italian (Rome)	2,065.00	n. q.	*2,187.00	2,035.00	1,143.00	* 779.00	933.00	* 727.00
B I	Superphosphate of lime, 14-16 % (Milan)	18.75	18 75	18.60	19.00	18.95	21.25	19.80	21.10
	Chloride of potash (Milan)	56.00	56.00	53.90	52.50	43.50	63.00	53.35	66.60
	Nitrate of lime, 15-16 % (Milan)	80.00	80.00	80.90	77.40	78.15	81.00	74.25	78.45
	Sulphate of ammonia, 20-21 % (Milan)	79.00	79.00	79.90	76.25	77 00	79.00	74.25	77.40
	Cyanamide of calcium, 15-16 % (Milan)	58.35	58.35	58.35	55.50	57.00	59.75	55.80	58.70
	Copper sulphate (Genoa)	...	...	...	...	100.85	94.25	89.25	96.85
B II	Wheat-bran (Genoa)	39.75	43.90	43.75	51.65	48.15	38.35	44.95	34.10
	Rice-bran (Milan)	43.50	45.10	47.35	59.15	50.55	31.67	43.45	27.25
	Linseed cake (Milan)	75 00	75.30	78.35	81.40	61.00	47.00	59.25	46.20
	Groundnut cake (Milan)	70.75	70.50	71.25	71.50	44.85	25.65	39.40	33 35
	Rapeseed cake (Milan)	37.50	38,40	39.00	38.45	39.25	27.50	35.55	24.75

NETHERLANDS (Prices in florins per quintal)

Groups	Description	Average							
		June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
A I	Wheat (Groningen)	11 35	11.20	11.05	10 71	12.20	12 55	11.82	12.13
	Rye (Groningen)	...	* 8.03	7.85	7.24	7.27	* 7.32	* 7.37	* 6.36
	Barley (Groningen)	...	5.31	5.20	4.84	5.11	4.56	5.32	4.33
	Oats (Groningen)	...	6.46	6 17	5.85	6.43	5.58	6.17	4.99
	Peas (Rotterdam)	n. q.	n. q.	n. q.	* 9.60	9.47	7.18	* 9.36	* 8.50
	Flax, fibre (Rotterdam)	49.50	49 50	51.30	57.37	59.33	48.33	52.87	48.92
	§Potatoes (Amsterdam)	...	3.73	3.65	2) 3.67	5.25	5.67	5.34	5.24
A II	Beef, dead weight (Rotterdam)	58.00	57.50	51.50	48.50	52.33	59.33	55.92	57.71
	†Pigs, live weight (Rotterdam)	34.00	32.00	32.50	35.50	35.17	33.00	33.37	35.92
	†Butter for export (Leeuwarden)	57 25	46.37	44.00	54.58	37.04	41.16	44.00	53.15
	†Cheese, Edam 40 % (Alkmaar)	40.38	37 50	34.12	34.57	23 52	35.10	31.32	39.37
	Cheese, Gouda 45 % (Gouda)	43.24	40.30	37.50	43.29	30.20	40.36	39.34	48.64
	†Eggs (per 100) (Roermond)	2.54	2.52	2.37	3.26	2.36	3.39	3.44	4.00
B I	Basic slag 1)	0.095	0.093	0.092	0,092	0.090	0.109	0.102	0.120
	Superphosphate, 17 %	n. q.	* 1.82	1.82	1.82	1.64	1.92	1.68	1.91
	Kainite 1)	0.103	0.105	0.105	0.105	0.068	0.079	0.068	0.090
	Nitrate of soda 15 ½ to 16 %	n. q.	6.30	6.30	6.18	6.59	6.00	6.24	6.07
	Sulphate of ammonia, 20 ½ %	5.40	5.30	5.30	5.17	5.11	4.75	4.90	4.72
B II	Maize (Rotterdam)	5.28	5.19	5.17	4.83	4.59	4.80	5.03	4.53
	Linseed cake, Dutch	6.74	6.25	6.50	6.41	5.19	6.25	6.20	6.35
	Coconut cake, Dutch	5.97	5.50	5 82	5.70	5.69	4.96	6.01	5.27
	Groundnut cake, Dutch	6.94	6 35	6,45	3) 6.16	4.78	4.96	5.51	5.17

POLAND (Prices in zlotys per quintal)

Groups	Description	Average							
		June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	1933-34
A I	Wheat (Warsaw)	23.50	23.32	22.09	20.40	17.38	19.60	18.63	22.09
	†Rye (Warsaw)	15.09	15.07	14.31	12.69	13.91	13.77	14.99	14.95
	†Barley (Warsaw)	15.87	15.87	15 68	15.60	17.36	* 15.75	19.87	* 15.55
	Oats (Warsaw)	16.04	15.90	15.23	14.43	15.89	13.50	15.31	13.69
A II	Oxen live weight (Warsaw)	66.25	65 75	63.00	60.80	58.33	69.70	60.06	67.30
	Pigs, live weight (Warsaw)	97.75	92.25	88.20	78.57	60.33	78.72	66.92	98.65
	Butter (Warsaw)	230.00	256.00	287.00	308.40	257.67	282.00	260.00	311.00
	†Eggs, new laid (per 100) (Warsaw)	5.23	5.06	4.91	7.79	5.24	5.55	6.88	7.99

---

*, †, §· see notes on page 520

1) Prices per unit of fertilizer material in 100 kg. — 2) March: 3.63. — 3) March (amended): * 6.40.

POLAND (*continued*)

Groups	Description	Average: June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	Agricultural year 1933-34
B I	Superphosphate 1)	...	0.65	0.65	8) 0.61	0.61	0.61	0.60	0.62
	Potash salts, 25 % 2)	...	7.10	7 83	7.78	8.95	* 11.31	8.60	11.06
	Sulphate of ammonia 3)	20.70	20.70	20.70	20.70	20.70	22.50	20.70	23.95
B II	Wheat-bran (Warsaw)	11.00	11.60	11.87	10.98	11.20	10.90	11.03	10.67
	Rye-bran (Warsaw)	10.31	12.05	11.87	9.36	10 05	9.23	9.72	9.05
	Linseed cake (Warsaw)	16.87	18.05	17.87	16.50	18.00	18.26	17.69	17.90
	Rapeseed cake (Warsaw)	14.00	15.05	15.25	14.33	12.35	12.63	13.20	13.67

SWEDEN (Prices in Swedish crowns per quintal)

Groups	Description	Average: June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	Agricultural year 1933-34
A I	Wheat (Stockholm)	n. q.	* 16.50	16.50	16.40	17.99	18.25	17.02	16.94
	Rye (Stockholm)	n. q.	* 15.50	15.50	15.13	16.66	17.00	15.96	15.55
	Barley (Stockholm)	n. q.	n. q.	n. q.	n. q.	n. q.	* 12.50	* 12.89	* 11.64
	Oats (Stockholm)	12.12	12.50	11 70	11.40	11.66	11.87	11.75	11.10
A II	Cows, live weight (Göteborg)	...	58.00	58 00	57.67	52.33	43.73	48.00	37.10
	Pigs, live weight (Göteborg)	...	84.00	89.00	89.33	78.33	50.45	65.50	49.37
	Butter (Malmö)	215.00	215.00	215.00	215 00	230 00	230.00	230.00	228.35
	Eggs (Stockholm)	90.00	85.00	85.90	131 67	73.07	64.27	106.20	90.47
B I	Superphosphate, 20 %	7.00	7.00	7.00	7 19	7.80	6.90	7.80	7.51
	Potash salts, 20 %	8.35	8.35	8.35	8 00	6.05	6 40	6.05	7.32
	Nitrate of soda	17.80	17.80	17.80	* 17 60	n. q.	17.35	n. q.	18.15
	Calcium cyanamide	16.80	16.80	16 80	* 16 60	n. q.	16.50	n. q.	16.50
B II	Maize, Plata	15.75	15.55	15.15	14 89	15.69	11.63	* 15.23	10.00
	Wheat-bran	13.45	13.81	13.65	13 18	12 70	11.25	12.50	10.35
	Groundnut cake	17.90	18.02	18 02	18 33	17.04	14.43	16.46	14.80
	Cotonseed cake	n. q	15.36	15 32	16.25	15.33	12.40	* 14.67	12.70
	Soya meal	17.12	17.05	17.10	17.81	16.68	13.30	15.91	14.08

CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)

Groups	Description	Average: June 1936	May 1936	April 1936	Jan.-March 1936	April-June 1935	April-June 1934	Agricultural year 1934-35	Agricultural year 1933-34
A I	Wheat (Prague) 4)	180.00	177.00	174.00	170.00	180.20	155.55	173.10	146.30
	Rye (Prague) 4)	140.00	140.00	137.50	132.35	138.50	113.65	132.60	98.20
	Barley, malting (Prague) 4)	135.50	135.50	135.50	134.00	135.50	98.15	131.35	* 90.85
	Oats (Prague) 4)	124.00	122.50	121.00	118.00	122.80	95.90	119.10	77.40
	Potatoes, edible	32.00	38.50	45.50	44.50	44.50	43.50	48.55	35.35
	Hops	2,478.00	2,550.00	2,549.00	2,830.00	4,085.00	3,078.00	4,095.00	3,774.00
A II	Beef, dead weight	1.050.00	975.00	950.00	950.00	792.00	725.00	744.00	744.00
	Veal, dead weight	875.00	987.00	850.00	862.00	833.00	654.00	663.00	644.00
	Pork, dead weight	950.00	950.00	925.00	1,020.00	926.00	650.00	813.00	782.00
	Butter	1,700.00	1,700.00	1,700.00	1,717.00	1,850.00	1,817.00	1,790.00	1,785.00
	Eggs, new laid (per 100)	47.50	46.65	49.15	60.30	41.25	40.55	51.35	54.15
B I	Basic slag, 15 %	...	...	34 85	34.85	34.85	34.70	34.70	34.80
	Superphosphate, 16 to 18 %	...	...	48.50	48.50	48.50	48.50	48.50	48.95
	Kainite, 14 %	...	...	22.45	22.00	19.15	19.65	18.10	19.25
	Nitrate of soda	...	...	130.00	* 130.00	130.00	125.00	* 129.15	* 125.00
	Sulphate of ammonia, 20 ½ %	...	...	123.40	123.40	123.40	123.40	122.00	122.70
B II	Maize, imported	106.00	106.00	104.50	107.85	107.85	68.90	102.70	68.10
	Wheat-bran (Prague) 5)	105.00	105.00	105.00	105.00	92.80	80.80	95.75	69.80
	Rye-bran (Prague) 5)	103.00	103.00	103.00	103.00	90.80	80.10	93.95	69.20
	Crushed soya (Prague) 5)6)	142.00	142.00	142.00	142.00	144.65	87.55	* 132.20	* 94.40
	Rapeseed cake (Prague) 5)7)	117.50	117.50	117.50	117.50	120.15	77.05	* 109.30	84.25
	Linseed cake (Prague, delivered Lovosice) 5)	139.50	139.50	139.50	139.50	142.15	* 90.50	* 133.25	* 92.00
	Groundnut cake (Prague, delivered Strekov) 5)	150.00	150.00	150.00	159.00	152.65	* 80.00	* 133.80	* 89.85

---

1) Prices per unit of fertiliser material in 100 kg.. — 2) New series from July 1934 onwards, Potash salts 20 %. — 3) New series from July 1934 onwards. — 4) Until the end of July 1934, average wholesale market prices; subsequently, producers' prices. — 5) Until the end of July 1934, average wholesale market prices; Aug -Nov., manufacturers' selling prices; subsequently, wholesalers' selling prices. — 6) From Aug. 1934, soyabean cake, delivered Lovosice. — 7) From July 1934, delivered Lovosice. — 8) Dec 7.33.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL 1)

DESCRIPTION	June	May	April	March	Feb.	Jan.	June	June	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
Wheat										
Budapest: Tisza	8.60	9.21	9.41	9.34	9.65	9.99	9.72	8.14	9.71	8.25
Winnipeg: No 1 Manitoba	9.03	8.70	9 03	9.18	9.15	9.52	9.19	8.84	9.53	8.52
Chicago: No 2 Hard Winter	10.72	11.12	11.70	12.14	12.49	13.11	10.57	10.96	12.08	11.10
Buenos-Aires: Barletta 2)	9.10	9.06	9.08	9.09	9.00	10.47	6.95	6.37	7.57	6.59
Berlin: Home grown	26.62	26.39	25.94	25.62	25.37	25.22	25.69	23.14	25.14	23.67
Hamburg (c. i. f.):										
No 1 Manitoba	11.17	* 11.13	* 11.18	11.33	11.48	11.98	10.66	10.10	11.44	10.22
Barusso	11.13	* 11.13	* 11.30	11.34	11.38	11.81	8.09	7.06	8.74	7.51
Antwerp:										
No 1 Manitoba (Atlantic)	10.65	10.89	11 18	11.40	11.62	12.00	10.70	10.40	11.23	10.18
Barusso	10.87	11.22	11.21	11.35	11.27	11.78	8.00	7.35	8.58	7.41
Paris: Home grown	19.95	19.13	20.21	20.60	18.95	17.17	16.34	26.80	16.08	24.57
Liverpool and London: (c. i. f.):										
German (on sample)	n. q.	n. q.	n q.	n q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.27
French (on sample)	8.88	9.26	* 9.15	* 9 06	8.92	9.18	7.35	6.97	7.08	* 7.03
Hungarian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.26
No 1 Manitoba (Pacific)	10 61	10.52	10.71	11 06	11.22	11.85	10.38	10.13	11.10	10.27
No 3 Manitoba (Pacific)	10.14	9 97	10.22	10.46	10.55	11.14	9.43	9.38	10.16	9 42
Rosafé	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	8.14	7.18	8.64	7.27
West Australian (cargoes)	10.67	10 59	10.63	10 47	10 43	11.00	9.40	8.93	9.61	8.83
Milan: Home grown, soft	29.01	29.01	28 74	28.60	28.26	27.78	28.04	21.76	26.63	22.81
Genoa (c. i. f.):										
No 1 Manitoba	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	10.48	9.72	* 10.28	* 9.65
No 1 Canadian Durum	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11.09	10.64	* 12.46	* 11.07
Rye										
Berlin: Home grown	22.01	21.78	21.37	21.06	20.81	20 65	20.75	19.58	20.29	19.34
Hamburg: Plata	6.65	* 6.86	* 6.82	6 76	6.60	6.82	5.94	5.75	6.31	6.54
Warsaw: Home grown	8.77	8.76	8 31	7.62	7.30	7.20	7.66	8 28	7.77	8.68
Minneapolis: No 2	7.04	6 20	6 06	6.20	6.74	6.47	6.68	8.23	6.72	8.49
Barley										
Braila: Average quality 3)	4.30	4.13	4.64	4 56	4.16	3.98	6.39	6.63	4) * 6.75	* 6.87
Prague: Malting, average quality	17.34	17.34	17.34	17.34	17.15	16.96	17.34	15.16	16.85	14.48
Winnipeg: No 4 Western	5.04	4.95	5.23	5.02	4.83	4.56	5 09	5.95	5.11	6.42
Minneapolis: No 2 Feeding	5.07	4.50	4 90	5.07	5.35	5.37	6 07	7.40	7.32	8.30
Berlin: Home-grown, fodder	22.39	22.16	21.74	21.43	21.18	21.02	20.62	* 21.23	20.33	19.41
Antwerp: Danubian	8.00	8.14	7.92	7.78	7.62	7.48	8.15	8.45	7.85	8.70
Liverpool and London (c. i. f.):										
No 3 Canadian Western	7.45	7.32	7.48	7.50	8.39	8.32	7.39	8.16	7.88	8 79
Plata	7.10	7.01	6.93	6.92	6.65	6.58	6.74	7.17	6.68	7.30
Persian	* 6.39	* 6.36	6.70	6.79	6.52	6.40	6.53	6.75	6.56	7.33
Oats										
Winnipeg. No 2 White	6.66	6.56	6.74	7.09	7.04	6.68	8.00	7.60	7.67	7.81
Chicago: No 2 White	6.54	6 22	6.37	6.37	6.94	6.93	8.68	9.29	8.72	9.65
Buenos-Aires: Current quality 2)	5.33	5.61	5.67	6.05	5.73	6.35	5.38	4.13	* 5.74	4.53
Berlin: Home grown	21.89	21.66	21.24	20.94	20.69	20.52	20.87	* 22.29	20.44	19.96
Paris: Home grown	16.31	16.65	15.66	16.14	15.05	12.82	9.22	10.64	9.62	10.05
London and Liverpool (c i. f.): Plata	n. 7.12	7.45	7.62	7.48	7.31	7.48	6.82	5.28	7.15	5.84

---

1) As gold franc, the Swiss franc, which still represents the franc of the former Latin Monetary Union, has been adopted, In cases where the difference between the rates of exchange of the national currency considered, and the parity with the Swiss franc did not, during a given month, reach 2 ½ %, the monthly average has been converted on the basis of parity. In other cases the average rate of exchange for the month has been utilized. Finally, when considerable fluctuations in the exchanges in the course of a particular month render it necessary, each weekly quotation has first been converted to gold francs, and the average of these conversions is used in the calculations — 2) The prices in gold-francs are based on the fixed rates of exchange of the Argentine peso. — 3) Prices in gold francs in Sept. 1935 and onwards are based on the course of the paper value. — 4) Jan.-Aug average. See preceding note.

DESCRIPTION	June 1936	May 1936	Avril 1936	March 1936	Feb. 1936	Jan 1936	June 1935	June 1934	Year 1935	Year 1934
Maize.										
Braila: Home-grown 1)	4.58	4.37	4.64	4.32	4.08	3.97	7.25	7.69	3)* 7,09	* 6.57
Chicago: No 3 Yellow	7.81	7.69	7.55	7.25	7.33	7.26	10.17	* 7.11	9.88	7.91
Buenos-Aires: Yellow Plata 2)	4.55	4.41	4.35	4.17	3.90	4.46	4.54	5.28	4.74	5.86
Liverpool and London (c. i. f.):										
Yellow Plata	6.39	6.22	6.12	5.87	5.44	5.47	5.64	6.31	5.82	6.88
No 2 White African	n. q.	n. q.	n. q	n. q.	n. q.	n. q.	* 6.18	6.98	6.26	* 7.90
Milan: Home-grown	20.76	20.66	20.45	20.48	20.48	20.61	20.73	16.42	18.98	14.50
Rice.										
Milan: Originario	30.19	30.59	30.86	31.14	31.29	32.44	32.20	27.44	30.90	27.22
Rangoon· No 2 Burma	8 44	8.41	8 32	7.98	7.49	7.41	8.91	* 6.48	8.50	6.91
Saigon: No 1 Round white	8.85	8.65	8.77	8.91	7.67	7.25	8.87	5.68	8.49	6.59
London (c. i. f):										
No 2 Burma	11.58	11.57	11.61	11.37	11.06	10.88	11.84	9.67	11.41	10.17
No 1 Saigon	11.36	11.35	11.49	11.59	10.63	10.04	11.28	8.49	11.05	9.58
Tokyo: Chumai	19.96	19.19	18.48	18.20	18.09	18.05	17.74	15.86	18.12	16.44
Cotton.										
New Orleans: Middling	82.65	79.18	78.71	77.13	75.57	78.57	80.85	81.83	80.48	83.52
Bombay (terminal market): M. g. Broach, f. g.	71.63	65.37	64.30	62.50	62.42	66.71	73.45	68.25	73.30	69.02
Alexandria: Sakellaridis, f. g. f.	115.46	107.99	107.79	109.03	110.54	113.69	99.60	107.43	104.98	108.44
Liverpool:										
Middling american	98.61	92.37	92.32	91.18	85,20	86.17	94.82	94.20	93.03	95.28
M. g. Broach, f. g.	77.52	71.89	74.05	72.53	71.97	74.90	79.64	72.19	79.15	71.87
Sakellaridis, f. g. f.	127.53	125.42	127.75	129.05	128.08	133.51	112.22	120.21	119.93	123.01
Beef.										
Berlin· Home-grown (live weight)	104.47	104.56	103.74	103.46	103.46	103 84	101.02	78.54	100.97	83.54
Paris: Home-grown (dead weight)	119.57	117.94	117.74	113 07	105.56	101.70	104.34	111.85	97.03	104.22
London: Home-grown (dead weight)	106 86	94.01	93.26	85.26	* 84.83	87.87	100.06	108.09	* 90.89	101.86
Mutton.										
Paris. Home-grown (dead weight)	186.35	193.46	203.41	205.84	206.04	205.44	197.92	216.80	204.71	225.99
London: Home-grown (dead weight)	* 126.01	127.55	110.69	106.58	* 104.40	105.27	116.60	152.31	* 121.20	128.70
Pork.										
Denmark: Home-grown (live weight)	115.71	118.01	119.02	118.26	116.23	109.86	117.43	110.71	108.89	107.97
Rotterdam: Home-grown (live weight)	70.82	66.66	67.70	70.82	73.95	77.07	68.74	64.57	80.46	68.74
Berlin: Home-grown (live weight)	125,62	125.72	124.74	124.40	124.40	124.86	113.37	85.66	119.29	107.88
Paris: Home-grown (live weight)	113.68	113.48	105.36	102.92	96.22	85.26	70.03	81.61	75.97	85.77
London: Home-grown (dead weight)	n. q.	n. q.	109.82	106.58	* 107.88	106.14	100.06	105.41	104.21	116.14

---

1) Prices in gold francs in September 1935 and onwards are based on the course of the paper value. — 2) The prices in gold-francs are based on the fixed rates of exchange of the Argentine peso — 3) Average January-August. See note 1).

DESCRIPTION	June 1936	May 1936	April 1936	March 1936	Feb. 1936	Jan. 1936	June 1935	June 1934	Year 1935	Year 1934
Butter										
Copenhagen: Danish	137.88	119.11	119.63	144.61	154.75	141.06	111.02	93.01	129.70	111.34
Leeuwarden: Dutch	119.25	96.59	91.65	95.30	127.06	118.73	83.88	84.36	101.80	92.48
Hamburg: Schleswig-Holstein	323.37	323.63	321.11	320.23	320.23	321.42	321.10	298.99	321.38	314.83
London:										
Danish	176.09	157.64	156.15	178.12	192.04	178.12	150.42	131.71	167.62	150.88
Argentine	n. q.	n. q.	n. q.	126.79	142.07	143.82	n. q.	n. q.	* 123.10	* 106.12
Australian, salted	162.35	140.49	130.37	124.55	137.72	139.96	126.17	112.70	132.34	107.41
New Zealand, salted	164.25	142.25	131.00	124.67	139.09	140.96	129.57	118.70	135.38	111.11
Cheese										
Milan: Parmigiano-Reggiano	189.69	182.34	179.12	173.89	168.43	169.75	158.02	196.96	163.90	190.75
Alkmaar: Edam 40 +	84.11	78.11	71.07	73.70	72.36	69.99	49.74	80.82	61.84	77.66
Kempten: Emmenthal variety	199.00	199.16	197.61	197.06	197.06	197.80	190.19	168.48	189.68	174.39
London:										
English Cheddar	n. q.	* 125.61	121.41	114.11	111.87	111.87	128.29	* 98.02	115.33	* 127.81
Canadian	100.77	96.73	91.65	91 48	90.74	90.24	93.98	84.24	89.52	82.69
New Zealand	90.84	86.39	79.57	74.58	77.69	81.54	66.13	73.13	72 52	71.08
Eggs (per 100)										
Denmark· Danish (per quintal)	52.66	51.46	* 43.38	51.90	75.35	96.30	51.29	49.70	72.09	71.69
Roermond: Dutch, for export	5.29	5.26	4.95	5.33	6.69	8.33	5.04	7.04	6.45	8.21
Warsaw: Polish, average quality	3.04	2.94	2.85	3.85	4.22	5.59	3.27	3.38	4.21	4.30
Berlin: German, big, special quality	11.50	11.51	11.42	11.39	12 77	14.22	11.11	10.97	13.06	12.67
London:										
Danish	6.54	6.21	5.94	6.63	8.41	9.31	6.24	6.46	7.82	8.08
Dutch	7.41	6.81	6.34	6.84	9.05	9.91	6.47	7.10	8.30	8.59

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1).

NATIONAL CURRENCIES	Actual Exchange Rates				Percentage Deviaton from Parity with Swiss Franc: premium (+) or discount (—)			
	10 July 1936	3 July 1936	26 June 1936	19 June 1936	10 July 1936	3 July 1936	26 June 1936	19 June 1936
Germany : free reichsmark	123.225	123.200	123.750	124.550	— 0.2	— 0.2	+ 0.2	+ 0.9
Argentina : paper peso †) 2)	89.725	89.842	90.217	91.256	— 59,2	— 59,2	— 59,0	— 58.5
Belgium : belga	51.625	51.625	51.900	52.300	— 0.5	— 0.5	0.0	+ 0.8
Canada : dollar	3.050	3.047	3.067	3.085	— 41.2	— 41.2	— 40.8	— 40.5
Denmark : crown	68.450	68.500	68.750	69.450	— 50.7	— 50.7	— 50.5	— 50.0
Spain : peseta	42.000	42.000	42.000	42.100	— 58.0	— 58.0	— 58.0	— 57.9
Egypt: pound 3)	15.325	15.345	15.400	15.550	— 39.2	— 39.2	— 38.9	— 38.3
United Kingdom : pound sterling								
United States : dollar	3.054	3.051	3.069	3.091	— 0.2	— 0.3	+ 0,3	+ 1.0
France : franc	20.255	20.250	20.275	20.352	— 0.2	— 0.3	— 0.1	+ 0.2
Indo-China: piaster 4)								
Hungary : pengő 5)	59.125	59.250	59.250	60.000	— 34.8	— 34.6	— 34.6	— 33.8
India : rupee †)	115.704	115.855	116.270	117.402	— 38.8	— 38.8	— 38.5	— 37.9
Italy : lira	24.125	24.100	24.200	24.300	— 11.6	— 11.6	— 11.3	— 10.9
Japan : yen †)	89.970	90.088	90.154	91.291	— 65.2	— 65.1	— 65.1	— 64,7
Netherlands : florin	208.000	208.200	208.150	209.050	— 0.2	— 0.1	— 0.1	+ 0.4
Poland : zloty	58.000	58.250	58.250	58.250	— 0.2	+ 0.2	+ 0.2	+ 0.2
Rumania : leu 5)	1.887	1.900	1.910	1.975	— 39.1	— 38.7	— 38,4	— 36,3
Sweden: crown	79.050	79.200	79.500	80.225	— 43.1	— 43.0	— 42.8	— 42.2
Czechoslovakia : crown	12.700	12.700	20.750	12.775	— 0.8	— 0.8	— 0.4	0.2

1) The exchange rate represents the value of 100 units of the national currency (one unit for the dollar and the pound sterling) expressed as far as possible in Swiss francs on the Zurich Exchange. With regard to the currencies marked thus † a conversion has been made; the original exchange rates on London being converted into Swiss francs at the rate of the £ in Zurich. — 2) Fixed exchange rates. — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 4) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 5) Bank notes.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

In the following pages the index-numbers of prices of agricultural products and other price-indices, of interest to the farmer, are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary tables are given below.

Percentage variations in the index-numbers for June 1936.

COUNTRIES	Comparison with May 1936		Comparison with June 1935	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany	+ 0.4	+ 0.2	+ 4.1	+ 2.8
England and Wales	+ 0.8	...	+ 3.4	...
Argentina	+ 0.5	—	+ 20.8	—
Canada	— 0.5	+ 0 7	+ 0.5	+ 1 1
United States: Bureau of Agric Economics	+ 3 9	—	+ 2.9	—
United States: Bureau of Labor	+ 3 8	+ 0 8	+ 0.3	— 0.8
Finland	..	..	..	...
Hungary	— 2.8	— 1.2	— 6.7	— 2.3
New Zealand	+ 3.1	—	+ 20.5	—
Netherlands	0.0	+ 1.0	+ 6.0	+ 1.1
Poland	...	...	..	...
Yugoslavia:				
plant products	— 6.5	— 2.4	+ 7.3	+ 2 3
livestock products	— 2.1		— 3.9	

Quarterly general index-numbers of prices of agricultural products.

(Base. first quarter of 1929 = 100).

COUNTRIES	1934			1935				1936	
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Germany	69.0	74.4	75.5	75.0	75.7	77.9	78.6	78.7	79.1
England and Wales	80.6	84.0	83.8	84.5	83.3	85.4	83.3	85.4	85.4
Argentina	63.6	72.5	69.0	66.5	66.1	69.0	74.4	78.2	78.8
Canada	58.8	62.7	62.9	73.8	74.2	64.5	67.3	67.7	66.6
United States: Bur. of Agr.Economics	57.1	63.7	69.4	74.4	73.8	71.9	74.7	73.3	71.9
United States: Bur. of Labor	57.3	63.2	67.0	73.8	75.2	74.1	73.5	73.5	72.2
Finland	67.3	67.8	70.4	70 4	69.8	72.0	72.6	75.1	3) 72 0
Hungary	49.4	51.1	52.9	55.3	56.1	59.6	64.8	61.0	53.6
Italy	53.5	55.6	57.9	58.8	63.0	67.8	...	...	...
New Zealand 1)	105.8	108.6	99.9	105.9	102.3	108.4	120 4	120.6	120.8
Netherlands	61.1	58.2	55.0	52.8	53.6	55.7	54.6	53.6	55.7
Poland 2)	50.9	51.0	48.8	45.9	45.1	46.1	49 7	45.4	48.2
Yugoslavia plant products	42.5	43.5	43.1	45.3	44.2	50.4	60 7	60.3	51.4
Yugoslavia livestock products	51.9	49.4	53.0	53.4	53 4	50.6	54.5	51.9	53.1

1) Base: first quarter of 1931 = 100. — 2) First month of each quarter compared with January 1929. — 3) Average of April and May only.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

Description	June 1936	May 1936	April 1936	March 1936	Feb. 1936	Jan. 1936	June 1935	June 1934	Year 1935	Year 1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	116.9	116.4	115.5	114.8	114.0	113.6	115.0	109.4	113.4	108.7
Livestock	88.9	88.7	89.0	88.4	90.0	90.3	83.2	63.8	84.2	70.9
Livestock products	107.3	107.2	107.3	107.4	108.1	110.4	103.4	100.5	107.1	105.0
Feeding stuffs	111.2	110.7	109.8	108.8	108.3	107.2	104.6	107.7	104.6	102.0
Total agricultural products	105.7	105.3	105.0	104.5	104.8	105.2	101.5	93.7	102.2	95.9
Fertilizers	68 4	67.9	69.9	69.9	69.8	68.9	65.7	68.9	66.8	68.7
Agricultural dead stock	111.3	111.4	111.3	111.2	111.2	111.2	111.1	111.2	111.1	111.1
Finished manufactures ("Konsumgüter")	126 7	126.2	125.9	125.6	125.1	124.6	123.8	115.7	124.0	117.3
Wholesale products in general	104.0	103.8	103.7	103.6	103.6	103 6	101.2	97 2	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 2)	121	120	129	122	123	124	117	114	123	119
Feeding stuffs	87	85	86	85	83	84	86	85	87	91
Fertilizers	89	89	89	89	89	89	89	91	88	90
Wholesale products in general 3)	...	100.2	100.9	101.6	102.0	102.0	98 5	94.9	99.5	96.4
Argentina (Banco Central de la República Argentina) 1926 = 100.										
Cereals and linseed	78.9	78.3	78.5	77.7	76.3	77.3	63.5	66.2	67.2	68.1
Meat	92.8	89.4	85.5	86.5	88.4	87.1	80.0	75.6	84.0	78.5
Hides and skins	78.1	80.7	88.6	93.2	94.7	96.4	77.3	64.6	80.5	71.6
Wool	98.9	97.7	98.2	99.2	94.4	92.3	69.2	81.4	74.6	84.3
Dairy products	86.6	94.2	83.0	73.3	80.3	78.0	82.6	64.9	88.8	62.3
Forest products	97.7	98.0	97.7	95.0	95.0	95.0	90.4	71.6	92.2	73.1
Total agricultural products	82.5	82.1	82.5	82.2	81.3	81.7	68.3	68.1	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain, etc.)	60.8	59.9	59.8	59 2	58.9	59.0	55.1	55.7	57.1	53.8
Livestock and livestock products	70.7	73.0	73.8	76.0	77.8	77.5	72.0	66.0	73.9	67.7
Total Canadian farm products	64.5	64.8	65.0	65.5	66.0	65.9	61.4	59.6	63.4	59.0
Fertilizers	74.3	74.3	72.9	74.3	75.6	75.8	75.8	75.4	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.4	75.3	75.3	75.8	75.7	75.4	75.7	77.1	75.7	77.0
Wholesale products in general	72.3	71.8	72.2	72.4	72.5	72.9	71.5	72.0	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696). 2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. — 3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

Description	June 1936	May 1936	April 1936	March 1936	Feb. 1936	Jan. 1936	June 1935	June 1934	Year	
									1935	1934
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	87	88	89	92	92	92	102	89	103	93
Cotton and cottonseed	96	96	96	93	94	95	103	94	101	99
Fruits	115	103	89	94	92	89	100	137	91	100
Truck crops (market garden crops)	99	105	107	77	117	118	96	80	127	104
Meat animals	120	118	125	122	125	122	119	64	117	68
Dairy products	106	106	114	118	123	120	99	92	108	95
Chickens and eggs	103	101	97	99	121	117	108	72	117	89
Miscellaneous	120	98	94	91	94	112	86	90	97	108
Total agricultural products	107	103	105	104	109	109	104	85	108	90
Commodities purchased 1)	121	121	121	121	122	122	127	121	125	123
Agricultural wages 1)	108	—	—	101	—	—	2) 90	2) 99	95	88
United States (Bureau of Labor) 1926 = 100.										
Cereals	73.0	70.6	73.9	75.6	78.3	78.9	76.9	72.4	82.4	74.5
Livestock and poultry	83.2	82.5	88.3	88.3	90.3	89.1	84.8	48.3	84.9	51.5
Other farm products	75.8	71.4	70.4	69.1	72.7	70.8	74.3	69.4	73.4	70.5
Total agricultural products	78.1	75.2	76.9	76.5	79.5	78.2	78.3	63.3	78.7	65.3
Agricultural implements	94.2	94.2	94.2	94.2	94.9	94.6	93.6	91.1	93.7	89.6
Fertilizer materials	64.0	64.7	64.6	64.8	64.5	64.4	65.7	67.9	66.3	67.1
Mixed fertilizers	66.6	65.3	64.5	68.3	68.8	68.8	74.5	73.4	70.6	72.5
Cattle feed	80.7	71.2	74.0	67.9	68.1	68.6	92.2	86.9	88.4	89.4
Non-agricultural commodities	79.4	79.2	80.1	80.2	80.7	80.9	80.0	76.9	80.2	76.9
Wholesale products in general	79.2	78.6	79.7	79.6	80.6	80.6	79.8	74.6	80.0	74.9
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	...	88	88	87	84	84	79	82	80	82
Potatoes	...	83	85	83	83	71	88	47	75	49
Fodder	...	66	66	65	65	64	67	69	62	72
Meat	...	77	80	83	82	76	72	72	75	71
Dairy products	...	78	78	84	86	85	77	70	83	75
Total agricultural products	...	76	78	81	81	79	75	71	76	73
Wholesale products in general	...	90	90	91	91	90	90	89	90	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	70	72	75	79	82	84	75	68	—	—
Wholesale products in general	85	86	88	91	93	94	87	81	—	—
Italy (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	...	...	...	...	...	...	359.6	293.2	...	297.9
Wholesale products in general	...	...	...	...	...	...	314.5	274.5	...	275.8
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	106.9	96.9	92.6	93.2	97.4	99.8	79.5	75.0	91.3	76.7
Meat	159.8	157.8	159.2	159.3	160.2	164.2	150.2	155.3	157.6	151.8
Wool	102.2	109.0	108.3	113.7	104.8	102.7	84.8	110.9	82.2	127.3
Other pastoral products	121.6	116.4	120.5	121.4	117.1	112.8	98.5	92.3	96.7	88.8
All pastoral and dairy products	121.9	118.0	116.6	118.1	118.1	119.6	100.6	105.3	107.2	108.9
Field products	127.4	128.8	129.9	133.4	132.3	127.4	124.7	124.3	126.0	120.0
Total agricultural products	122.1	118.4	117.0	118.6	118.5	119.8	101.3	104.6	108.8	104.7

---

1) 1910-1914 = 100. — 2) July.

DESCRIPTION	June 1936	May 1936	April 1936	March 1936	Feb. 1936	Jan. 1936	June 1935	June 1934	Year	
									1935-36 2)	1934-35 2)
Norway										
(Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	148	145	145	145	145	144	145	101	144	126
Potatoes	132	147	155	160	160	135	257	116	165	132
Pork	101	93	108	111	113	123	94	74	109	83
Other meat	146	143	144	143	145	145	138	130	146	137
Dairy products	137	137	137	137	137	137	138	130	139	132
Eggs	88	88	101	110	109	113	75	68	102	92
Concentrated feeding stuffs	126	129	126	124	125	127	111	97	123	109
Maize	125	125	124	120	120	121	95	85	113	101
Fertilizers	88	89	88	88	87	86	78	88	82	81
Netherlands										
(Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.									1934-35 3)	1933-34 3)
Plant products	47	50	48	47	49	48	58	56	58	59
Livestock products	55	54	53	50	50	51	48	54	49	53
Total agricultural products	53	53	51	49	50	50	50	55	51	55
Agricultural wages	68	68	69	69	69	69	69	71	71	74
Wholesale products in general 1)	61.6	61.0	61 1	61.5	62.0	62.4	60 9	—	4) 61.5	4) 63.0
Poland										
(Central Bureau of Statistics) 1928 = 100.									1935	1934
Raw plant products	...	39.8	39 1	36.0	35.2	33.4	37.2	38.1	33.9	35.6
Meat animals	...	41.1	38.5	34.7	34.4	35.2	32.4	35.3	35.5	36.7
Dairy products and eggs	...	37.5	38 4	39 3	43.4	40.8	37.5	33.0	41.2	41.2
Products directly sold by farmers	...	39.8	38.8	36.2	36.5	35.4	35.6	36.2	35.8	37.0
Flour and groats	...	39.2	40.0	36.0	35.3	35.4	36.0	38.1	36.7	38.8
Meat and lard-fat	...	48.0	42 2	39.3	39.5	41.2	37.1	42.9	40.8	43.5
Sugar, alcohol, beer	...	71.6	71.8	71.8	71.8	71.8	79.3	90.0	79.2	88.6
Products of agricultural industries	...	52.9	51.2	48.9	48.7	49.3	50.6	56.8	52.0	56.7
Total agricultural products	...	46.3	44.9	42 4	42.5	42.3	43.0	46.4	43.8	46.8
Commodities purchased	...	64.3	64 6	64.8	65.1	65.2	66.8	71.4	66.8	70.6
Wholesale products in general	...	53.7	53.0	52.1	52.2	52.1	52.7	55.8	53.1	55.8
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	64.5	69.0	76.3	80.5	82.9	83.0	60.1	64 8	68.2	57.4
Livestock products	56.2	57.4	56.5	55.6	53.8	56.7	58.5	54.4	56.6	55.4
Industrial products	67.6	67.9	69.4	69.7	69.9	70.2	65.7	68.5	66.7	67.4
Wholesale products in general	65.4	67.0	69.1	70.0	70.0	71.1	63.9	65.6	65.9	63.2

---

1) New index-numbers, calculated by the the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) Agricultural year: 1st April–31 March. — 3) Agricultural year: 1st July–30 June. — 4) Calendar year.

SUPPLEMENTARY INFORMATION ON PRICES

In the table below some quotations are given of Friday 17 July 1936. The qualities and price-units used in various markets will be found in the table " Weekly Prices by Products " on page 515.

WHEAT

Winnipeg	94 3/4
Chicago	111 5/8
Minneapolis	126 5/8
New-York	123 7/8
Buenos Aires	10.80
Antwerp: Home grown	115.00
» Nº 1 Manitoba	116.00
» Barusso	111.00
Paris	104.00
London: Home-grown	33/3
Liverpool and London:	
French	29/6
South Russian	n. q.
Nº 1 North. Manitoba (Atlantic)	34/8 1/4
Nº 1 North. Manitoba (Pacific)	34/4 1/2
Nº 3 North. Manitoba (Pacific)	33/3 3/4
White Pacific	n. q
Rosafé	n. q.
West Australian	n. q.
New South Wales	n. q.

RYE

Winnipeg	58 1/2
Minneapolis	74 1/2

BARLEY

Winnipeg	49 1/4
Chicago	60
Minneapolis	61
Antwerp	82 00
London	n q
Liverpool and London:	
Danubian	17/7 1/2
Russian	n q
Canadian Nº 3 Western	22/6
Californian	30/6
Plata	17/10 1/2
Persian	17/4 1/2

OATS

Winnipeg	44
Chicago	40 3/4
Buenos Aires	6.30
Paris	81.85
London	20/6
Liverpool and London.	
Canadian Nº 2 Western	20/10 1/2
Plata	14/–

MAIZE

Buenos Aires	5.45
Antwerp: Yellow Plata	73.50
» Cinquantino	79.00
Liverpool and London:	
Danubian	20/6
Yellow Plata	19/10 1/2
Nº 2 African	n. q.

RICE (milled)

Rangoon	240
London: Nº 3 Belloch	11/4 1/2
» Italian	n. q.
» American Blue Rose	n. q.
» Nº 2 Rangoon	7/6
» Nº 1 Saigon	8/–
» Siam Super	8/6
» Tokyo	31.70

LINSEED

Buenos Aires	15.25
Bombay	8-7-0
Antwerp	167.00
London Plata	11-16-3
» Bombay	n. 14-7-6
» Duluth	209 1/2

COTTON

New Orleans	12.93
New York	13.23
Bombay F. G. Broach (spot)	237
» Oomra, fine	214
Liverpool: Middling, fair	n. 8.57
» Middling	6.47
» Sâo Paulo, g. f.	7.32
» Broach, g. f.	n. 5.71
» C. P. Oomra s'fine	5.97
» Sakellaridis, f. g. f.	10.44
» Upper Egyptian, f. g. f.	8.42

The prices of Netherlands eggs, white, 57 to 58 grs. each, ex Roermond, expressed in florins per 100, for the periods in which they have not appeared in the *Crop Report*, are given below.

Date	Eggs for export into Germany	Eggs destinations for other	Date	Eggs for export into Germany	Eggs destinations for other
24 April 1936	3.00	2.50	22 May 1936	2.90	2.45
1 May »	2.90	2.50	29 » »	2.90	2.45
8 » »	3.00	2.70	5 June »	2.85	2.45
15 » »	3.00	2.55	12 » »	3.00	2.55

RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark Sweden	Egypt	Spain Switzerland	United States (4)	France Indo China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czecho-slovakia (6)
Germany	Reichsmark	1.000	0.561	11,898	0.238	0.889	4.819	1.235	0.403	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648
Argentina	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17,191
Belgium	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.040	0.050	0.178	3.347	0.811
Canada	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.230	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501
Denmark/Sweden . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854
Egypt	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	2.002
Spain/Switzerland . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815
United States.	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920
France/Indo-China (5) .	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.587
Great Britain	Shilling	1.021	0.573	12,154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856
Hungary	Pengö	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084
India	Rupee	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783
Italy.	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131
Japan	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189
Netherlands	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280
Poland	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	4.543
Romania	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.019	0.114	0.012	0.015	0.053	1.000	0.242
Czechoslovakia	Crown (6)	0.103	0.058	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000

---

(1) Each quotation shows the par-value of the monies named in the column headed "Unit of currency" calculated in terms of the currency of the countries printed in the heading. — (2) From 31 March 1935 the franc represents only 72 % of its previous gold value — (3) Till 31 January 1934 also parity of the United States. — (4) New parity as from 31 January 1934 — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only $^{5}/_{6}$ of its previous gold value.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile*

MONTHLY CROP REPORT
AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country· Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad 5 = verv bad; France· 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands· 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Switzerland 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad, U. S. S. R. 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States· 100 = crop condition which promises a normal yield; Egypt· 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

CEREALS

Wheat — In accordance with last month's expectations, world wheat exports in June, the last month for which figures are available, were again of modest dimensions though larger than those of the same period of last year The weakening tendency in prices recorded in June, arising from the good prospects of the North American and Danubian crops, failed to stimulate the grain trade. The trade movement in July, however, to judge from the first indications, reflects the appreciable recovery in demand which occurred with the sharp rise in prices caused by the North American drought and it is now expected that total exports

World net exports of wheat (including flour in terms of wheat) *)

(Million bushels)

Months	1935-36	1934 35	1933 34	1932-33	1931-32	1930-31	1929-30
August	39	49	45	41	66	77	71
September	50	43	51	48	78	74	57
October	51	50	46	62	74	84	60
November	51	43	41	54	67	77	51
December	34	38	51	60	64	59	50
January	34	43	48	62	62	54	48
February	46	41	44	64	73	70	45
March	45	49	50	64	74	67	50
April	30	42	35	40	70	62	42
May	45	47	44	52	67	81	50
June	41	32	45	42	59	67	51
July	...	35	46	44	45	52	53
Total August-June	*466*	*471*	*500*	*589*	*754*	*772*	*575*
Total year	1) *540*	*512*	*546*	*633*	*799*	*824*	*628*

*) Aggregate net exports of the normal exporting countries (United States net imports not deducted).

1) Estimate of October 1935 and March 1936, probably too high

St. 8 Ingl.

in July will be larger than usual. But the trade movements of a single month cannot substantially affect the results for the whole season and the total volume of exports in 1935-36, as we have stated in earlier issues, will fall short of the figure of 540 million bushels which was anticipated at the beginning of the year and which was retained without change in March. It seems clear that the total world import requirements of the year 1935-36 which closed on 31 July were about equal to those of last year, that is, 510 million bushels.

The net imports of the European importing countries, including the United Kingdom and Ireland as well as the Continental countries, agree fairly closely with our expectations. The small margin still remaining between these and those of last year will be fully covered when the July figures are published.

Net imports of wheat into Europe (including flour in terms of wheat) *).

(Million bushels)

Months	Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	11	27	18	14	32
September	15	13	28	20	16	36
October	21	15	36	18	13	31
November	21	14	35	17	12	29
December	20	11	31	20	12	32
January	15	10	25	12	10	22
February	14	8	22	16	10	26
March	20	8	28	20	11	31
April	18	9	27	17	10	27
May	20	11	31	22	10	32
June	21	12	33	18	10	28
July	...	...	...	19	12	31
Total August-June	*201*	2) *122*	2) *323*	*198*	3) *128*	3) *326*
Total year	1) *220*	1) *135*	1) *355*	*217*	*140*	*357*

*) Aggregate net imports of normal importing countries, after deduction of net exports, if any.

1) October 1935 and March 1936 estimate. — 2) After deduction of net exports of 7 million bushels from Latvia, Portugal and Sweden. — 3) After deduction of net exports of 19 million bushels from France, Estonia, Latvia and Sweden.

The slight difference between our estimate of the world requirements in 1935-1936 and the actual results revealed by the figures of world net exports is to be attributed to the demand from non-European countries which proved to be smaller than the expectations, notwithstanding the support fothcoming in the import requirements of the United States. For this country we anticipated a demand for 30 million bushels and the trade returns for the first eleven months of the year already indicate net imports of 26 million bushels. Thus the contrac-

Cereal production.

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
				WHEAT				
Germany	1) 106,282	102,894	102,128	177,133	171,487	170,209	103.3	104.1
Austria w)	7,619	8,927	7,333	12,698	14,877	12,222	85.4	103.9
Belgium	9,447	8,868	8,836	15,744	14,780	14,726	106.5	106.9
Bulgaria w)	33,466	26,379	31,574	55,775	43,965	52,622	126,9	106.0
Spain	72,896	94,792	94,850	121,490	157,984	158,080	76.9	76.9
Estonia	1,396	1,360	1,322	2,326	2,267	2,203	102.6	105.6
Finland	2,829	2,540	1,105	4,714	4,233	1,842	111.4	255.9
Engl. and Wales	31,472	36,355	28,932	52,453	60,592	48,220	86.6	108.8
Scotland	2,027	2,666	1,649	3,379	4,443	2,748	76.1	123.0
Greece	14,246	15,841	11,048	23,743	26,401	18,414	89.9	128.9
Hungary	52,329	50,535	45,904	87,213	84,223	76,506	103.6	114.0
Latvia w)	1,823	2,626	2,303	3,039	4,376	3,838	69.4	79.2
Luxemburg	613	613	448	1,022	1,022	747	100.0	136.8
Netherlands	9,883	9,992	7,082	16,472	16,653	11,802	98.9	139.6
Portugal	5,036	13,256	10,871	8,393	22,092	18,118	38.0	46.3
Romania	72,753	57,864	62,069	121,252	96,438	103,446	125.7	117.2
Switzerland	2,818	3,594	2,692	4,696	5,989	4,486	78.4	104.7
Yugoslavia	63,423	43,861	47,697	105,703	73,100	79,494	144.6	133.0
Totals	*490,358*	*482,963*	*467,843*	*817,245*	*804,922*	*779,723*	*101.5*	*104.8*
Canada w)	2) 6,982	7,561	8,678	2) 11,637	12,601	14,463	92.3	80.5
Canada s)	2) 111,100	158,843	200,458	2) 185,200	264,738	334,097	70.0	55.4
United States w)	311,400	278,522	331,252	519,000	464,203	552,087	111.8	94.0
United States s)	68,400	95,545	107,744	114,000	159,241	179,574	71.6	63.5
Mexico	7,796	6,167	7,248	12,993	10,279	12,080	126.4	107.6
Totals	*505,678*	*546,638*	*655,380*	*842,830*	*911,062*	*1,092,301*	*92.5*	*77.2*
India 3)	211,344	217,907	214,368	352,240	363,179	357,280	97.0	98.6
Japan	27,730	29,233	22,080	46,216	48,721	36,799	94.9	125.6
Totals	*239,074*	*247,140*	*236,448*	*398,456*	*411,900*	*394,079*	*96.7*	*101.1*
Algeria	17,086	20,120	19,543	28,476	33,532	32,571	84.9	87.4
Egypt	27,421	25,933	25,877	45,701	43,221	43,128	105.7	106.0
French Morocco	9,319	12,022	17,705	15,531	20,036	29,509	77.5	52.6
Tunisia	4,630	9,921	7,774	7,716	16,534	12,956	46.7	59.6
Totals	*58,456*	*67,996*	*70,899*	*97,424*	*113,323*	*118,164*	*86.0*	*82.4*
GRAND TOTALS	**1,293,566**	**1,344,737**	**1,430,570**	**2,155,955**	**2,241,207**	**2,384,267**	**96.2**	**90.4**
				RYE				
Germany	1) 176,127	164,866	172,215	1) 314,513	294,404	307,527	106.8	102.3
Austria w)	10,113	12,489	12,305	18,058	22,302	21,973	81.0	82.2
Belgium	7,893	10,372	12,018	14,094	18,522	21,461	76.1	65.7
Bulgaria w)	4,854	3,682	5,208	8,668	6,576	9,300	131.8	93.2
Spain	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81.5
Estonia	3,572	3,810	4,437	6,378	6,804	7,923	93.7	80.5
Finland	7,884	7,706	7,710	14,078	13,760	13,768	102.3	102.3
Greece	1,418	1,294	1,231	2,531	2,312	2,198	109.5	115.2
Hungary	17.020	16,044	15,950	30.392	28,650	28,483	106.1	106.7
Latvia w)	6,519	7,941	6,875	11,641	14,180	12,276	82.1	94.8
Luxemburg	255	253	273	456	452	487	100.9	93.7
Netherlands	10,900	10,323	8,771	19,464	18,434	15,662	105.6	124.3
Portugal	2,045	2,618	2,599	3,652	4,674	4,640	78.1	78.7
Romania	8,819	7,126	7,686	15,747	12,724	13,725	123.8	114.7
Switzerland	489	717	796	874	1,279	1,422	68.3	61.5
Totals	*268,018*	*259,996*	*270,486*	*478,599*	*464,279*	*483,009*	*103.1*	*99.1*
Canada w)	2) 2,266	4,365	3,801	2) 4,046	7,795	6,787	51.9	59.6
Canada s)	2) 600	1,014	1,205	2) 1,100	1,811	2,152	65.2	54.9
United States	15,176	33,000	17,512	27,100	58,928	31,272	46.0	86.7
Totals	*18,042*	*38,379*	*22,518*	*32,246*	*68,534*	*40,211*	*47.2*	*80.4*
GRAND TOTALS	**286,061**	**298,375**	**293,004**	**510,845**	**532,813**	**523,220**	**95.9**	**97.7**

COUNTRY	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
				BARLEY				
Germany	1) 78,651	74,682	69,512	1) 163,859	155,591	144,820	105.3	113.1
Austria	6,387	5,992	6,110	13,306	12,484	12,729	106.6	104.5
Belgium	963	2,059	2,112	2,007	4,290	4,400	46 8	45.6
Bulgaria w)	5,905	5,204	5,906	12,302	10,842	12,304	113.5	100.0
Spain	37,690	46,589	53,442	78,523	97,062	111.340	80.9	70.5
Finland	4,043	3,658	3,953	8,424	7,621	8,235	110.5	102.3
Engl and Wales	14,851	14,694	16,285	30,940	30,613	33,927	101.1	91.2
Greece	4,449	4,248	4,165	9,269	8,851	8,678	104.7	106.8
Hungary	13,230	12,268	14,029	27,563	25,558	29,227	107.8	94.3
Luxemburg	76	71	105	158	149	219	106.1	72.1
Netherlands	2,577	3,387	1,598	5,369	7,057	3,329	76,1	161.3
Romania	35,274	20,367	35,311	73,489	42,431	73,567	173.2	99.9
Switzerland	159	176	264	331	367	550	90.0	60 1
Totals	*204,255*	*193,395*	*212,792*	*425,540*	*402,916*	*443,325*	*105.6*	*96 0*
Canada	2) 27,800	40,308	39,400	2) 57,900	83,975	82,083	68 9	70.5
United States	69,600	135,468	101,794	145,000	282,226	212,071	51.4	68 4
Totals	*97,400*	*175,776*	*141,194*	*202,900*	*366,201*	*294,154*	*55.4*	*69.0*
Japan	33,514	37,732	35,906	69,822	78,610	74,805	88,8	93,3
Algeria	13,228	15,849	16,982	27,558	33,020	35,381	83,5	77.9
Egypt	5,196	5,021	4,851	10,825	10,461	10,107	103.5	107.1
French Morocco	28,872	17,188	25,334	60,151	35,809	52,781	168.0	114.0
Tunisia	1,653	8,819	4,189	3,445	18,372	8,727	18.7	39 5
Totals	*48.949*	*46,877*	*51,356*	*101,979*	*97,662*	*106,996*	*104 4*	*95.3*
GRAND TOTALS	**384,118**	**453,780**	**441,248**	**800,241**	**945,389**	**919,280**	**84.6**	**87.0**
				OATS				
Germany	1) 127,218	118,734	136,318	1) 397,553	371,043	425,991	107.1	93.3
Belgium	11,440	17,050	16,114	35,749	53,280	50,355	67.1	71.0
Bulgaria	2,515	2,041	2,284	7,859	6,379	7,137	123.2	110.1
Spain	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.8
Finland	14,127	13,424	14,893	44,147	41,951	46,540	105.2	94.9
Engl and Wales	23,654	25,491	27,655	73,920	79,660	86,422	92.8	85.5
Greece	2,632	2,220	2,179	8,226	6,938	6,810	118.6	120.8
Hungary	5,652	5,421	6,120	17,663	16,941	19,126	104.3	92.4
Luxemburg	940	984	981	2,938	3,075	3,067	95.5	95.8
Netherlands	6,479	6,202	6,346	20,248	19,380	19,830	104.5	102.1
Romania	17,637	13,089	16,928	55,115	40,904	52,899	134.7	104.2
Switzerland	445	445	715	1,426	1,392	2,235	102.5	63,8
Totals	*224.933*	*217,699*	*245,987*	*702,914*	*680,312*	*768,707*	*103.3*	*91.4*
Canada	2) 87,700	134,078	120,468	2) 273,900	418,995	376,462	65.4	72.8
United States	247,040	382,934	315,212	772,000	1,196,668	985,039	64.5	78 4
Totals	*334.740*	*517,012*	*435,680*	*1,045,900*	*1,615,663*	*1,361,501*	*64.8*	*76.8*
Algeria	3,306	2,332	3,525	10,334	7,288	11,014	141.8	93.8
French Morocco	474	340	580	1,481	1,062	1,811	139.4	81.8
GRAND TOTALS	**563,453**	**737,383**	**685,772**	**1,760,629**	**2,304,325**	**2,143,033**	**76.4**	**82.2**

---

w) Winter crop. — s) Spring crop. — 1) Including Saar Territory with a very small production. — 2) Conjectural estimate based on crop condition on 31 July and longtime average yield. — 3) Final estimate of production

tion in demand occurred in the extra-European countries which are normally importers, particularly in China, notwithstanding this country's poor crop of 1935, Manchukuo and the Union of South Africa.

* * *

The crops of the new season, which opened on 1 August, and the trade outlook show the following features.

The growing season in Europe was unfavourable for both maturation and harvesting operations. The wet, stormy and frequently cold weather which prevailed from the end of the spring delayed ripening and caused widespread lodging; harvesting was impeded in nearly all parts. The first threshing results in many areas were disappointing in both quantity and quality. Good or very good results have been secured only in Eastern Europe, the crops there having extracted benefit from a very favourable spring and early summer.

The preliminary estimates received by the Institute up to the present are not numerous and represent only half the total wheat production of Europe, exclusive of the U. S. S. R. Eighteen countries have issued estimates, three indicating outturns about equal to those of 1935 and six reporting appreciably larger crops, while the remaining nine have obtained crops which are distinctly below the levels of 1935. The increases, though fewer in number, more than offset the reductions, the total for these eighteen European countries being 12 million bushels larger than the 1935 crops and 37 millions above the average of the period 1930 to 1934. These figures are partial and the good results they reveal are not to be expected in the rest of Europe. The countries which have not hitherto made estimates of their crops include the large wheat-growing countries where the prospects are either poor or below average, such as France and Italy, and the effect of their harvests on total European production may appreciably modify the results outlined above. In the case of Poland and Czechoslovakia, neither of which has made an estimate of the size of its crop, the latest news indicates a less promising situation than that of a month ago; nevertheless, the outlook still suggests that the crops there are slightly larger than those of last year and the average.

It was estimated last June that, given a normal summer, European wheat production would be 1,525 million bushels, made up of 1,080 millions in the importing countries and 445 millions in the exporting countries. In July, as a result of the unfavourable conditions experienced between mid-June and mid-July in the importing countries, it was thought that a reduction of 30 million bushels was necessary to allow for this deterioration in the crop prospects. Between mid-July and mid-August conditions varied widely from place to place and the net effect on the crops is probably negligible. In view of the provisional and conjectural nature of the estimates, there appears to be no reason for changing the figure of 1,495 million bushels for all Europe anticipated last month until more definite information on the results in France and Italy is to hand.

The preliminary estimates of the area under wheat in Europe, the probable production and the yield per acre are given below.

Production of wheat in Europe.

Years	Area (thousand acres)	Production (million bushels)	Yield (bushels per acre)
1936 (estimate)	76,400	1,495	19.6
1935	78,600	1,573	20.0
1934	77,600	1,549	20.0
1933	77,900	1,748	22.4
1932	75,400	1,490	19.8
1931	76,100	1,437	18 9
1930	73,600	1,360	18.4
1929	70,200	1,450	20.7
1928	71,400	1,409	19 8
1927	71,200	1,274	17.8
1926	69,900	1,216	17.4
1925	69,700	1,404	20 1

According to these figures, total European production in 1936 is 78 million bushels below that of 1935 and 22 millions below the 1930-34 average. The decrease is largely due to the contraction in area amounting to 2,200,000 acres since 1935 and partly to the yield per acre, which is the lowest of the last five years.

Although the results of 1936 do not thus appear to be substantially below those of last year for the Continent as a whole (the reduction is barely 5 %), the difference is much more considerable when the results in the importing countries are viewed separately. For this group we envisaged in June a total of 1,080 million bushels which was reduced in July to 1,050 millions owing to the damage resulting from bad weather between mid-June and mid-July. A further, if slight, reduction is necessary to allow for the unfavourable conditions experienced subsequently in a number of these countries. The total estimate is, therefore, now brought down from 1,050 to 1,035 million bushels and it compares with 1,187 millions, actually obtained last year. There is accordingly a margin of about 150 millions, or 12 %, between the indicated results in 1936 and those of 1935, a decrease which has occurred in nearly all the importing countries but which is largely the effect of the short crops of France, Italy, Spain and Portugal. The reduced dimensions of the 1936 crop might lead one to expect a considerable increase in the import demand of the importing countries but in view of the considerable quantity of old crop stocks held in several of these countries (France, Spain, Portugal, Sweden, Switzerland and Czechoslovakia), of the general tendency towards economic self-sufficiency and of the difficulties of international payments, we are inclined to believe that the European wheat demand in 1936-37 will show only a limited expansion.

The four Danube countries, which with Poland and Lithuania, constitute the surplus-producing group of Europe, have, on the contrary, obtained plentiful crops greatly exceeding those of last year and the average and approaching the record outturns of 1931. On the whole, according to the present outlook, production in this group will vary around 460 million bushels, as compared with 386 millions last year and an average of 393 millions in the years 1930 to 1934. Most of the increase is contributed by Yugoslavia and Romania, the changes in the other countries being less considerable.

In the U. S. S. R. the weather conditions continued to be unfavourable to the spring crops in large areas which had previously suffered from the inadequacy of the rainfall in June-July. The outlook points to a smaller crop than that secured last year. Although there is little evidence from which to estimate the output of wheat and rye in the Soviet Union, it appears improbable that this country will place more than a modest quantity on the world wheat market in 1936-37.

It is now clear that in North America the drought and excessive heat of July and August have very seriously affected the spring crops in both the United States and Canada. Owing to the damage suffered in the summer, the outturn of the United States does not appear to be large enough to meet internal requirements; supplies from Canada will again be necessary, as was the case last year, or the existing stocks, which at the beginning of the season were still 70 million bushels above the minimum carry-over, will again have to be drawn upon. But, as other cereals, in addition to wheat, have yielded poorly this year, the United States will be obliged to utilise stocks and at the same time, purchase considerable quantities of wheat abroad.

An official estimate of the Canadian wheat crop is not yet available but a calculation based on the crop condition of 31 July and on the area cultivated indicates the lowest outturn recorded since 1919.

The final estimate of the Indian wheat crop is only slightly larger than the preceding figure and a roughly average production is thus confirmed The recent rise in world wheat prices may result in some exports of Indian wheat, which for some years has been absent from the world market, but its reappearance is still subject to the outcome of the other grain and food crops still in the fields. Turkey alone among the countries of the Near East has harvested a large crop affording a margin for export, the other countries having obtained lower than average crops. China and Manchukuo report plentiful crops while those of Japan and Korea are average.

The crops of French North Africa are distinctly smaller, those of Morocco and Tunisia in particular. The total for the three countries is 30 % below the 1930-34 average.

The present prospects, according to the information received up to the middle of August, indicate that the crop of the northern hemisphere, exclusive of China and the U. S. S. R., is about 3,000 to 3,050 million bushels, and accordingly, about 130 to 180 millions below the outturn of 1935 and about 220 to 270 millions below the average of the years 1930-1934.

The information on the first stage of growth of the wheat crops in the southern hemisphere is more satisfactory and partly offsets the poor prospects of the northern hemisphere.

As a result of the good rains experienced in Australia after June, it was possible to make up some of the leeway in field work caused by the drought. Germination was even and in the middle of August the crops were healthy and vigorous. The area is 5 % larger.

Work and sowings were also delayed in Argentina owing to the excessively damp and wet weather. A return of fine weather in recent weeks facilitated sowing which was practically completed by the middle of August. The wheat area is officially estimated to be 18 % larger than last year's but it is still considerably below the quinquennial average. The condition of the wheat crop was satisfactory everywhere. In view of the poor results of the northern hemisphere, it seems essential that the southern should provide a plentiful or at least average crop to assure the world wheat supplies if the old crop stocks are not to be reduced to a dangerous point.

The most recent estimates of the stocks on 1 August 1936 in the exporting countries and of the quantities afloat are reproduced below and indicate that the total amount of stocks, which had already been considerably reduced in 1934-35, contracted still further in the season which has just ended. They have declined from 503 to 383 million bushels and are thus at the beginning of the new season at the level normally recorded before the 1929 crisis.

Stocks of old crop wheat on 1 August.

(million bushels)

COUNTRIES	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
United States 1)	116	141	153	273	326	355	417	408	306	306	174
Canada 2)	40	56	92	128	128	140	137	219	204	204	128
Argentina 3)	48	49	68	109	35	49	33	50	90	50	27
Australia 3)	12	24	26	29	38	49	38	43	73	46	33
Afloat	39	46	45	37	39	38	30	32	35	18	21
Total . . .	*255*	*316*	*384*	*576*	*566*	*631*	*655*	*752*	*708*	*503*	*383*

1) Stocks on 1 July, including flour in the city mills expressed in terms of grain and including also domestic wheat in store in Canada — 2) Including domestic wheat in store in the U. S. A. — 3) Exportable quantities on 1 August.

The small crop of 1936 will barely suffice to meet requirements and it will again be necessary to draw upon stocks. To estimate the quantity likely to be required it is first necessary to outline the situation of world supplies and requirements. The summary below is put forward merely as an indication. It is to be borne in mind that it is based on incomplete information and on a number of conjectural estimates as there is still some uncertainty attaching to the crop results in general, particularly to those of the southern hemisphere where the harvest is still some considerable distance ahead.

Exportable supplies of the 1936 *crop.* — Canada 130 million bushels, Argentina and Australia 200 to 220 millions, U. S. S. R., Danubian, North African and other countries 110 to 130 millions, a total of 440 to 480 millions.

Import requirements in 1936-37. — European importing countries 420 millions, non-European importing countries (including the United States) 150 millions, a total of 570 millions.

The margin between the exportable supplies of the 1936 crop and the import requirements of the year 1936-37, which is to be covered by drawing upon the stocks held on 1 August, thus varies between 90 and 130 million bushels, according to the provisional estimates.

* * *

The prospects of the other cereal crops may be summarised as follows.

Rye. — Production in Europe will be about equal to that of 1935, which was large, and above the 1930-34 average. Production in North America is poor.

Barley. — Total European production, notwithstanding the poor crop in Spain, appears to be rather larger than that of last year, which was mediocre but slightly below the average. Production in Romania is about average. The North American crops, owing to the drought, are very low. In North Africa, good barley results were secured only in Morocco; production is mediocre in Algeria and distinctly poor in Tunisia.

Oats. — European production is slightly larger than last year's and roughly average. Production in North America is poor.

G. Capone.

Germany· The cold, damp weather in July had a rather bad effect on the ripening and the harvesting of cereals and the forecast for production is, though satisfactory, rather below that of the previous month, especially for winter rye On the other hand, winter barley and oats have to a certain extent improved.

Spelt production in Germany (including the Saar) was estimated in the middle of August at 2,417,000 centals and meslin at 22,037,000 centals.

Austria. After the beginning of July there were violent storms and heavy rain with a considerable freshening effect After a few clear days, the weather again broke up at the beginning of the second decade and continued changeable with rain and hailstorms.

The grain crops ripened slowly and harvesting operations were delayed. Owing to the heavy rains, some crops were laid and the quality of the winter cereals suffered. Winter rye is uneven and the grain is not full grown.

The winter barley crops, which are now mostly threshed, give good yields. The condition of the spring cereals is better and the grain is well developed, particularly that of oats, which are of good quality. Straw is long but has suffered considerably from lodging.

Belgium: The month of July was characterized by almost daily rains and a rather low temperature, with the result that much damage was caused to the cereal crops, most of which are suffering from lodging, and harvest is expected to be poor.

According to the most recent estimate, the production of meslin this year is about 8,600,000 lb. against 12,600,000 lb. in 1935 and 12,100,000 lb. on the average of the five years ending 1934; percentages, 68.6 and 71.2. The corresponding figures for spelt are 45,400,000 lb., 71,200,000 lb. and 64,600,000 lb.; percentages, 63.8 and 70.3.

Bulgaria: The abundant rains which fell during the first decade of July at first hindered harvesting, but the hot, dry weather which prevailed during the remainder of the month was favourable to harvesting and threshing which were completed in almost all districts by the end of the month. The cereal crop is expected to be good, and better than last year. Losses of cereal crops on account of disease in some localities cannot affect the general situation of the harvest.

Estonia: During July the weather remained warm and precipitation was very light. In some parts of the country drought was reported.

Owing to the favorable weather conditions, the gathering of winter grain, which is now being harvested, is developing satisfactorily.

Irish Free State: With the exception of a few days towards the end of the month, the weather was very wet and temperatures were below the normal for the season. The weather conditions favoured growth and all crops made good progress. Harvesting was expected to be a little later than usual.

A limited amount of damage has been done to crops by rains and storms. There were no reports of loss through plant diseases and the quality of the harvest promises to be average.

The acreage under oats and barley is somewhat smaller but that under wheat is considerably increased. Yields will probably be smaller than those of last year.

France: In July and the first half of August the weather was mostly wet, and heavy rains and hailstorms laid the crops; this weather was interrupted only by an occasional day of respite Difficulty was encountered in cutting the barley crop as it was badly damaged, as well as in harvesting rye, and both crops were brought in with difficulty and only by taking advantage of the slightest fine spells in the weather. Harvesting of wheat was prolonged and took place under very poor conditions, chiefly because a large portion of the crop was laid and had to be hand cut. The bad weather seriously hindered the work and prevented bringing in, while a portion of the grain germinated. When the weather improved in the middle of August it was possible to start active work on harvesting; a certain proportion of the crops was then got under cover, while it was hoped soon to bring in the rest. The quality of the grain has suffered from the bad weather, but there is a possibility of a slight improvement if the dry weather keeps up.

Great Britain and Northern Ireland The weather during July was exceptionally wet, thunder storms accompanied by torrential rain and cold strong winds having been experienced throughout the country. Whilst the rains promoted plant growth, the general effect of the weather upon agriculturae was adverse. Grain crops were laid in many parts of the country. On the whole, the crops are fair but badly need sunshine to ripen and swell the grain. Harvesting began in some areas in July. Wheat was reported to have made fair progress but is generally thin on lighter soils. Barley on the whole is looking well and promises to be the best of the cereal crops. Oats are variable, winter oats being fairly good generally, while spring oats are irregular and likely to be short in the straw.

The area under wheat in England and Wales, at 1,703,000 acres, shows a reduction from last year of 69,300 acres and of 56,000 acres from that of 1934. The acreage under barley, after a continuous decline from 1920 to 1935, is larger by 27,400 acres, or 3.5%. Oats, at 1,417,000 acres, show only a fractional decline. The first estimates of production (see Tables) are based on the general condition of crops on 1 August. They are preliminary forecasts only, as detailed enquiries as to yields are not made at this period. Moreover, the actual yields may be appreciably affected by weather conditions after

Area and Crop Condition.

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1936	1935	Average 1930 to 1934	% 1936		1-VIII-1936			1-VII-1936			1-VIII-1935		
	Thousand acres			1935 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
WHEAT														
Germany . . . w)	1) 4,741	4,735	4,643	100.1	102.1	—	—	—	2.3	—	—	—	—	—
s)	1) 404	470	667	86.1	60.6	—	—	—	2.6	—	—	—	—	—
Austria . . . w)	592	579	513	102.3	115,4	2.6	—	—	2.1	—	—	2.1	—	—
*s)	...	30	22	...	...	2.9	—	—	2.3	—	—	2.5	—	—
Belgium	386	387	384	99.6	100 4	—	—	—	—	f)	—	—	—	—
Bulgaria	2,644	2,729	3,078	96.9	85.9	—	—	—	—	—	—	—	—	—
*Denmark	...	311	259	...	...	—	—	93	—	—	—	—	—	99
Spain	10,768	11,063	10,820	97.3	99.5	—	—	—	—	—	—	—	—	—
*Estonia	...	154	127	...	...	—	—	w) 94	—	—	w) 97	—	—	w) 87
Finland	191	174	71	109.4	268.9	—	—	—	—	—	—	—	—	—
France 2)	12,712	13,234	13,229	96.1	96.1	—	—	—	—	—	—	—	—	—
Engl. and Wales .	1,703	1,772	1,450	96 1	117 4	—	—	—	—	—	—	—	—	—
Scotland	94	101	66	93.3	141.5	—	—	—	—	—	90	—	—	—
Northn. Ireland .	7	9	5	75.8	134 0	—	—	—	—	—	—	—	—	—
Greece.	2,104	2,118	1,623	99.3	129.6	—	—	—	—	—	—	—	—	—
Hungary	4,107	4,135	3,943	99.3	104.2	—	—	—	—	—	—	—	—	—
Latvia. . . . . w)	172	210	168	81.7	101.9	—	—	—	—	—	—	—	—	—
Lithuania . . . w)	485	536	505	90.4	95.9	103	—	—	110	—	—	117	—	—
Luxemburg . . .	43	43	30	100.0	142.0	2.3	—	—	2.1	—	—	2.4	—	—
*Norway	...	59	32	...	...	—	s) 100	—	—	—	s) 98	s) 104	—	—
Netherlands . w)	315	320	223	98 4	141.5	3) 73	—	—	3) 71	—	—	—	3) 72	—
s)	54	60	44	90 3	122.3	3) 73	—	—	—	—	—	—	3) 72	—
Poland . . . w)	3,748	3,756	3,850	99.8	97.4	3) 3.5	—	—	3) 3.5	—	—	3) 3.3	—	—
s)	578	579	429	99.8	134 5	3) 3 2	—	—	3) 3 2	—	—	3) 3.3	—	—
Romania.	7,391	8,496	7,704	87.0	95.9	—	—	—	—	—	—	—	—	—
*Sweden	..	674	707	...	...	8) 103	—	—	—	—	—	—	8) 100	—
Switzerland . . .	171	150	142	114 0	120.6	68	—	—	—	—	—	87	—	—
Czechoslov. 4) w)	2,217	2,250	2,027	98.5	109.4	—	—	—	2.6	—	—	—	—	—
s)	124	137	120	90.4	102.9	—	—	—	2.6	—	—	—	—	—
Yugoslavia	5,305	5,313	5,099	99 8	104.0	—	—	—	—	—	—	—	—	—
Total Europe . .	*61,056*	*63,356*	*60,833*	*96.4*	*100 4*	—	—	—	—	—	—	—	—	—
U. S S. R. . . . w)	34,721	32,507	27,080	106.8	128.2	—	—	—	—	—	—	—	—	—
Canada . . . w)	5) 491	6) 555	6) 576	88 5	85.2	—	—	—	—	—	89	—	—	—
s)	7) 24,354	6) 23,561	6) 25,106	103.4	97.0	—	—	45	—	—	82	—	—	81
United States . w)	5) 37,875	6) 33,353	6) 37.073	113.6	102.2	—	—	—	—	—	66.3	—	—	—
s)	5) 13,184	6) 17,995	6) 17,098	73.3	77 1	—	—	32.8	—	—	45.7	—	—	49.4
Mexico	1,217	1,199	1,244	101 5	97 9	—	—	—	—	—	—	—	—	—
Total America . .	*77,121*	*76,663*	*81,097*	*100.6*	*95.1*	—	—	—	—	—	—	—	—	—
India 8)	33,631	34,490	33,315	97.5	100.8	—	—	—	—	—	—	—	—	—
Japan	1,686	1,627	1,356	103.7	124.4	—	f)	—	—	f)	—	—	f)	—
Syria and Lebanon	1,317	1,288	1,245	102.2	105.7	—	—	—	—	—	80	—	—	98
Total Asia . . .	*36,634*	*37,405*	*35,916*	*97.9*	*102.0*	—	—	—	—	—	—	—	—	—
Algeria	4,248	4,095	3,893	103.7	109.1	—	—	—	—	—	—	—	—	—
Egypt	1,464	1,463	1,560	100.0	93.8	—	—	—	110	—	—	—	—	—
French Morocco .	3,205	3,616	2,887	88.6	111.0	—	—	—	—	—	—	—	—	—
Total Africa . . .	*8,917*	*9,174*	*8,340*	*97.2*	*106.9*	—	—	—	—	—	—	—	—	—
Argentina	16,803	14,209	19,369	118.3	86.8	—	—	—	—	—	—	—	—	—
Australia	12,400	11,809	15,223	105.0	81.5	—	—	—	—	—	—	—	—	—
GRAND TOTAL m)	**212,931**	**212,616**	**220,778**	**100.1**	**96.4**	—	—	—	—	—	—	—	—	—
n)	**247,652**	**245,123**	**247,858**	**101.0**	**99.9**	—	—	—	—	—	—	—	—	—
RYE														
Germany. . . w)	1) 11,006	11,052	10,971	99.6	100.3	—	—	—	2.4	—	—	—	—	—
s)	1) 143	166	170	86.3	84.2	—	—	—	2.6	—	—	—	—	—
Austria . . . w)	905	887	902	102.1	100.3	2.9	—	—	2.3	—	—	2.3	—	—
*s)	...	44	41	...	...	2.6	—	—	2.4	—	—	2.6	—	—

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1936	1935	Average 1930 to 1934	% 1936		1-VIII-1936			1-VII-1936			1-VIII-1935		
	Thousand acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Belgium	525	529	553	99.3	94.9	—	—	g)	—	f)	—	—	—	—
Bulgaria	431	433	562	99.5	76.7	—	—	—	—	—	—	—	—	—
*Denmark	...	391	346	...	...	—	—	91	—	—	—	—	—	94
Spain	1,471	1,401	1,460	104.9	100.7	—	—	—	—	—	—	—	—	—
*Estonia	...	357	365	...	...	—	—	99	101	—	—	—	—	—
Finland	593	598	553	99.2	107.2	—	—	—	—	—	—	—	100	—
France	2) 1,635	2) 1,660	1,745	98.5	93.7	—	—	—	—	—	—	—	—	—
Greece	166	185	173	89.7	95.6	—	—	—	—	—	—	—	—	—
Hungary	1,619	1,537	1,583	105.3	102.3	—	—	—	—	—	—	—	—	—
Latvia w)	592	658	617	89.9	95.9	—	—	—	—	—	—	—	—	—
Lithuania	1,216	1,267	1,217	96.0	99.9	—	100	—	110	—	—	117	—	—
Luxemburg	19	19	20	100.0	98.0	2.3	—	—	1.2	—	—	2.2	—	—
*Norway	...	15	16	...	...	—	—	w) 92	—	—	w) 94	—	—	w) 96
Netherlands	544	519	440	104.9	123.7	3) 72	—	—	3) 73	—	—	3) 72	—	—
Poland w)	14,315	14,229	14,153	100.6	101.1	3) 3.3	—	—	3) 3.5	—	—	3) 3.5	—	—
Poland s)	63	64	62	99.4	102.0	—	—	3) 2.9	—	3) 3.0	—	3) 3.1	—	—
Romania	798	960	941	83.1	84.8	—	—	—	—	—	—	—	—	—
*Sweden	...	560	552	...	...	—	—	—	—	—	—	—	—	w) 97
Switzerland	38	39	44	99.1	86 1	69	—	—	84	—	—	82	—	—
Czechoslovakia w)	2,483	2,464	2,489	100.8	99 7	—	—	—	2.8	—	—	—	—	—
Czechoslovakia s)	47	50	60	94.5	79.7	—	—	—	—	—	—	—	—	—
Yugoslavia w)	546	542	516	100.7	105.9	—	—	—	—	—	—	—	—	—
Total Europe	*39,155*	*39,259*	*39,231*	*99.7*	*99.8*	—	—	—	—	—	—	—	—	—
U. S. S. R. w)	57,426	58,607	64,255	98.0	89.4	—	—	—	—	—	—	—	—	—
Canada u)	5) 490	6) 574	6) 658	85.4	74.5	—	—	—	—	—	68	—	—	—
Canada s)	7) 144	6) 146	6) 200	98.8	72.1	—	—	49	—	—	79	—	—	89
United States	5) 3,015	6) 4,196	6) 2,917	71.9	103.3	—	—	—	—	—	50 9	—	—	—
Total America	*3,649*	*4,916*	*3,775*	*74.2*	*96.6*	—	—	—	—	—	—	—	—	—
Algeria	2	3	3	66.3	48.5	—	—	—	e)	—	—	—	—	—
Argentina	1,730	1,750	1,645	98.9	105.1	—	—	—	—	—	—	—	—	—
GRAND TOTAL m)	**44,536**	**45,928**	**44,654**	**97.0**	**99.7**	—	—	—	—	—	—	—	—	—
GRAND TOTAL n)	**101,962**	**104,535**	**108,909**	**97.5**	**93.6**	—	—	—	—	—	—	—	—	—
BARLEY.														
Germany w)	1) 1,065	957	616	111.3	172.8	—	—	—	2.3	—	—	—	—	—
Germany s)	1) 2,959	3,009	3,299	98.3	89.7	—	—	—	2.5	—	—	—	—	—
Austria w)	394	402	421	98.0	93,7	2.4	—	—	2.2	—	—	2.3	—	—
Austria s)						2.4	—	—	2.1	—	—	2.6	—	—
Belgium	98	96	89	102 0	110.3	—	—	g)	—	f)	—	—	—	—
Bulgaria	488	501	607	97.5	80.4	—	—	—	—	—	—	—	—	—
*Denmark	...	851	875	...	...	—	—	86	—	—	—	101	—	—
Spain	4,528	4,536	4,481	99.8	101.0	—	—	—	—	—	—	—	—	—
*Estonia	...	258	267	...	...	—	—	85	—	—	—	—	—	—
Finland	324	315	306	102.9	105.7	—	—	—	—	—	—	—	100	—
France	2) 1,790	2) 1,809	1,819	99.0	98.4	—	—	—	—	—	—	—	—	—
Engl and Wales	819	792	924	103.5	88.6	—	—	—	—	—	—	—	—	—
Scotland	74	77	84	96 7	88 2	—	—	—	—	—	—	—	—	—
Northn. Ireland	3	3	2	90.9	163.6	—	—	—	—	—	—	—	—	—
Greece	503	557	541	90.3	92.8	—	—	—	—	—	—	—	—	—
Hungary	1,134	1,057	1,167	107.2	97.2	—	—	—	—	—	—	—	—	—
Lithuania	529	508	490	104.2	108.1	106	—	—	110	—	—	113	—	—
Luxemburg	6	6	8	100.0	68.1	2.5	—	—	2.4	—	—	2.4	—	—
*Norway	...	153	140	...	...	102	—	—	—	100	—	101	—	—
Netherlands w)	38	37	21	101.9	180.4	3) 72	—	—	—	—	3) 70	—	—	3) 65
Netherlands s)	67	64	43	105.3	155.0	—	—	3) 69	—	—	3) 69	—	—	3) 66
Poland w)	79	80	105	98.5	74.9	3) 3.4	—	—	3) 3.5	—	—	—	3) 3.0	—
Poland s)	2,940	2,931	2,895	100.3	101.6	3) 3.2	—	—	3) 3.2	—	—	3) 3.3	—	—
Romania	4,197	4,079	4,571	102.9	91.8	—	—	—	—	—	—	—	f)	—
*Sweden s)	...	258	287	...	...	—	—	3) s) 98	—	—	—	3) s) 103	—	—
Switzerland	10	10	17	100.8	62.0	70	—	—	82	—	—	83	—	—
Czechoslovakia w)	15	14	17	110.9	90.7	—	—	—	—	—	—	—	—	—
Czechoslovakia s)	1,581	1,586	1.683	99.7	93.9	—	—	—	2.5	—	—	—	—	—
Yugoslavia w)	613	594	617	103.1	99.3	—	—	—	—	—	—	—	—	—
Total Europe	*24,254*	*24,020*	*24,823*	*100.9*	*97.7*	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1936	1935	Average 1930 to 1934	% 1936		1-VIII-1936			1-VII-1936			1-VIII-1935		
	Thousand acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Canada	7) 4,055	6) 3,887	6) 4,076	104.3	99.5	—	—	56	—	—	87	—	—	93
United States . .	5) 8,827	6) 12,243	6) 10,640	72.1	83.0	—	—	48.4	—	—	60.3	—	—	74.6
Total America . .	*12,882*	*16,130*	*14,716*	*79.9*	*87.5*	—	—	—	—	—	—	—	—	—
Japan	1,918	1,916	2,019	100.1	95.0	e) f)	—	—	—	f)	—	—	f)	—
Syria and Lebanon	751	715	797	105.1	94.3	—	—	—	—	—	80	—	100	—
Total Asia	*2,669*	*2,631*	*2,816*	*101.5*	*94.8*	—	—	—	—	—	—	—	—	—
Algeria	3,085	3,104	3,350	99.4	92.1	—	—	—	—	—	—	—	—	—
Egypt	282	281	319	100.6	88.6	—	—	—	—	—	—	—	—	—
French Morocco .	4,151	4,303	3,464	96.5	119.8	—	—	—	—	—	—	—	—	—
Total Africa . . .	*7,518*	*7,688*	*7,133*	*97.8*	*105.4*	—	—	—	—	—	—	—	—	—
Argentina	1,977	1,940	1,642	101.9	120.4	—	—	—	—	—	—	—	—	—
GRAND TOTAL . . .	**49,300**	**52,409**	**51,130**	**94.1**	**96.4**	—	—	—	—	—	—	—	—	—
OATS														
Germany	1) 6,871	6,893	8,113	99.7	84.7	—	—	—	2.7	—	—	—	—	—
*Austria	...	742	762	...	...	2.2	—	—	2.1	—	—	2.9	—	—
Belgium	691	714	716	96.8	96.5	—	—	g)	—	f)	—	—	—	—
Bulgaria	256	268	314	95.6	81.6	—	—	—	—	—	—	—	—	—
*Denmark	...	909	953	...	...	—	—	85	—	—	—	101	—	—
Spain	1,358	1,619	1,767	83.8	76.8	—	—	—	—	—	—	—	—	—
*Estonia	...	342	355	...	...	—	—	97	—	—	—	—	—	—
Finland	1,100	1,163	1,126	94.6	97.7	—	—	—	—	—	—	—	f)	—
France	2) 8,217	2) 8,193	8,357	100.3	98.3	—	—	—	—	—	—	—	—	—
Engl. and Wales .	1,417	1,418	1,581	99.9	89.6	—	—	—	—	—	—	—	—	—
Scotland	828	827	847	100.1	97.7	—	—	—	—	—	—	—	—	—
Northn. Ireland .	265	273	289	97.2	91.6	—	—	—	—	—	—	—	—	—
Hungary	521	503	581	103.7	89.7	—	—	—	—	—	—	—	—	—
Lithuania	883	841	880	105.0	100.3	110	—	—	117	—	—	123	—	—
Luxemburg . . .	66	66	70	100.0	94.5	2.4	—	—	2.5	—	—	2.3	—	—
*Norway	...	215	236	...	...	—	—	99	—	—	98	—	—	98
Netherlands . . .	332	316	350	105.1	94.8	3) 73	—	—	—	—	3) 69	—	3) 71	—
Poland	5,582	5,521	5,434	101.1	102.7	3) 3.3	—	—	3) 3.2	—	—	3) 3.3	—	—
Romania	2,039	1,970	2,178	103.5	93.6	—	—	—	—	—	—	—	—	—
*Sweden	...	1,654	1,611	...	...	s^3) 103	—	—	—	—	—	s^3) 113	—	—
Switzerland . . .	26	25	40	103.5	64.9	75	—	—	81	—	—	78	—	—
Czechoslovakia . .	1,924	1,921	2,014	100.1	95.5	—	—	—	2.7	—	—	—	—	—
Yugoslavia . . . w)	85	66	9) 78	129.3	108.4	—	—	—	—	—	—	—	—	—
Total Europe . . .	*32,461*	*32,597*	*34,735*	*99.6*	*93.4*	—	—	—	—	—	—	—	—	—
Canada	7) 14,150	6) 14,096	6) 13,301	100.4	106.4	—	—	57	—	—	87	—	—	90
United States . .	5) 34,440	6) 39,924	6) 37,556	86.3	91.7	—	—	55.0	—	—	60.6	78.3	—	—
Total America . .	*48,590*	*54,020*	*50,857*	*90.0*	*95.5*	—	—	—	—	—	—	—	—	—
Syria and Lebanon	29	30	30	93.3	94.7	—	—	—	—	—	—	—	—	—
Algeria	477	434	516	109.9	92.4	—	—	—	—	—	—	—	—	—
French Morocco . .	73	70	73	103.5	100.3	—	—	—	—	—	—	—	—	—
Total Africa . . .	*550*	*504*	*589*	*108.8*	*93.3*	—	—	—	—	—	—	—	—	—
Argentina	2,965	2,953	3,631	100.4	81.7	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	**84,595**	**90,104**	**89,842**	**93.9**	**94.2**	—	—	—	—	—	—	—	—	—

(†) See explanation according to the various systems, page 533. — *) Countries not included in the totals. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Poor. — h) Very poor. — m) Not including U. S. S. R. — n) Including U. S. S. R. — w) Winter crop. — s) Spring crop. — 1) Including Saar Territory, with a very small production. — 2) Acreages sown up to 1 May. — 3) Middle of the previous month. — 4) Including spelt. — 5) Area indicated for harvest. — 6) Area harvested. — 7) Area to be sown according to farmers' intentions on 1 May 1936. — 8) Final estimate. — 9) Average 1933 and 1934.

1 August. The figures indicate decreases in the wheat and oat crops, and a very slight increase in the barley outturn.

The returns show that in Scotland there are decreases in the wheat and barley acreages but practically no change in the area under oats. The wheat yield is at present expected to be 24 % below last year's outturn.

The areas devoted to the three main corn crops in Northern Ireland are all below the 1935 levels, particularly wheat, which shows a decline of nearly one quarter.

Greece: Meteorological conditions during the months of June and July were characterised by frequent rains and were not at all favourable to the growth of cereal crops and particularly of wheat. The wheat harvest is expected to be from 10 to 20 % less than that of last year, as the crops in Macedonia and Thrace more especially have been severely damaged. As regards other cereals, production is expected to be more abundant than that of last year.

Italy: According to information from the *Banca Nazionale dell'Agricoltura* threshing of cereals, which was well forward at the end of July in the plains and on the hills, was completed during the first fortnight of August, favoured by the good weather. In the mountain regions, the wheat crop is being harvested under good conditions.

Latvia: The weather in July was very hot and particularly so during the first decade of the month. The total quantity of precipitation for the month was normal but unequally distributed, with the result that the situation is only slightly improved. There have been many severe storms which have caused damage in certain regions. In 51.6 % of the replies from agricultural correspondents the condition of the winter wheat crop on 15 July was reported as average, in 28 6 % of the replies it was above the average and in 19 8 % below the average The corresponding figures for spring wheat are as follows 43 4 %, 28 7 %, 37 9 %; for winter rye: 47 7 %, 29 6 %, 22 7 %, for barley 35 4 %, 14 0 %, 50 6 %; for oats 39.1 %, 22 8 %, 38 1 % The unsatisfactory condition of the crops is attributed almost entirely to the drought.

Lithuania · The drought and heat which prevailed during the month of July, except for some storms accompanied by hail at the beginning of the month, were not, favourable to the growth of the crops, the harvest, however, which was begun on 10 July (two weeks before the normal time), was carried out under excellent conditions Rye and wheat grain are of very good quality.

Luxemburg · The rainy weather which prevailed throughout July has delayed normal harvesting and caused considerable damage to all the crops, especially to wheat a portion of which has lodged and begun to germinate.

Netherlands: Condition of winter wheat is on the whole good In the fen colonies the heavy crop has in places been laid Rust is especially reported from North Holland. The condition in Zeeland is good Rye is everywhere good and in many districts a heavy crop. Much depends on the future weather. In Gelderland and North Brabant frost damage has been considerable. Condition of winter barley is good, the crop in Limburg being so heavy that some laying has occurred. Oats are in general good. Heavy crops in Groningen, Drenthe, Overijssel and North Brabant have in places been laid.

Poland: According to reports from correspondents of the Central Bureau of Statistics, the period from July 5 to 15 was characterized by sufficient heat for the growth of cereal crops.

In spite of frequent and often violent rainfall, soil humidity was, generally speaking, unsatisfactory especially in the provinces of Nowogrodek, Polesia and

Lublin. The condition of all cereal crops was slightly worse. The only exception was the province of Stanislawow, where an improvement was reported in the condition of cereal crops. From almost all areas damage is reported to cereal crops from storms and hail with consequent shedding.

After the general improvement in crop condition, especially in spring cereal crops, reported between 15 June and 5 July, a general decline is notified and in this case it is more serious as regards winter cereals:—

Crops	15 July 1936	5 July 1936	15 June 1936	15 July 1935
Winter wheat	3.5	3.6	3.5	3.3
Spring wheat	3.2	3.4	3.2	3.3
Winter rye	3.3	3.5	3.5	3.5
Spring rye	2.9	3.1	3.0	3.1
Winter barley	3.4	3.6	3.5	3.0
Spring barley	3.2	3.4	3.2	3.3
Oats	3.3	3.4	3.2	3.3

With the exception of winter wheat and winter barley, the condition of all cereal crops on 15 July was worse than at the corresponding period of last year. Nevertheless, the general condition of cereal crops was good and above the average, except in the case of spring rye which was below the average.

In spite of frequent storms, harvesting was carried out under favourable conditions almost everywhere, except in Kielce, Posnan and Silesia where it is being hindered by the bad weather.

Sweden: During June the temperature was above normal. Precipitation, which was in many places scarce, was unequally distributed.

In various districts winter crops were damaged by bad weather during the winter, but recovered with the hot weather in June. Spring crops are a little late on account of the drought.

Switzerland: The month of July was characterized by continuous rains, storms and mist. The rainy weather caused serious damage to cereal crops. The unusual amount of rain led to shedding in a great proportion of the crops, and more particularly in rye and winter wheat. Shedding and a very abundant growth of weeds have complicated and delayed the harvest with the result that there is a serious deficit both in the quantity and in the quality of the yield; production is therefore far below the estimates made at the beginning of July.

According to the most recent estimate, the production of spelt this year is about 54,700,000 lb. against 63,100,000 lb. in 1935 and 62,300,000 lb. on the average of the five years ending 1934; percentages, 86.7 and 87.8. The corresponding estimate of meslin is 304,000 centals (525,000 bushels) against 368,000 (635,000) and 288,000 (497,000); percentages, 82.6 and 105.6.

Czechoslovakia: According to information from an unofficial source, the new cereal crops are of inferior quality and owing to their humidity will be less suitable for storage than last year's crops.

Yugoslavia: The numerous sunny days at the end of June and during the first decade of July brought about an early ripening of the cereal crops. By 15 July cereals were being harvested almost everywhere.

Generally speaking July was a month characterized by hot but unsettled weather; rain fell frequently, particularly towards the end of the month, accompanied by storms and hail and often followed by sudden heat.

As a result of the weather conditions, the condition of the cereal crops has suffered, and the quality and quantity of production is expected to be inferior to what was expected at the beginning of July.

U. S. S. R.: Statistics of the area under all spring crops, which on 25 June were completed in all parts, were given last month. The figures in the following table showing details of the sowings refer to 10 May 1936.

Crops	Thousand acres		Percentage of Plan	
	1936	1935	1936	1935
Wheat	46,637,000	46,839,500	84	89
Barley	15,578,000	15,247,000	86	88
Oats	25,828,000	29,104,500	63	72

The very hot, dry weather which prevailed after the middle of June continued almost throughout July, interrupted by occasional rainfall of a stormy character, especially in the east and south-east The heat became intense towards the end of the month and in the beginning of August, causing rapid ripening of the cereal crops from 15-20 days ahead of the normal time, not only in the southern districts but also in the central regions and even in the north of the country.

The work of harvesting was therefore accelerated and by the beginning of August almost all the cereal crops had been harvested in Crimea, in the Azov-Black Sea region, in Ukraina and in the North Caucasia, the work was half-finished in the central regions and was progressing rapidly even in the north of the country.

By 5 August the cereal area harvested amounted, throughout the Union, to 125.8 million acres, or 57 % of the Plan, as against 99.6 million acres (48 %) by the same date in 1935; on the same date, this year the area threshed was 62.5 million acres, or 50 % of the area harvested, as against 31.1 million acres (31 %) on August 5th, 1935.

Generally speaking, crop condition was not very satisfactory in the south, where the heat caused blasting and the storms hindered field work and caused shedding among the cereal crops. In spite of this, however, it is expected that the harvest will be better than the average of the last few years.

In the beginning of August a plan was published for the sowing of winter cereals during the season 1936-37. According to this plan, it is expected that 94.9 million acres will be sown to cereals this winter throughout the Union, as against 93.4 million acres planned for last winter. According to the same plan, the area to be sown to winter wheat should amount to 36 8 million acres as against 34 8 million acres under last year's plan, and as against 34 6 million acres actually sown during the winter of 1935.

Argentina: Province of Buenos Aires. — Owing to excessive rains, field work was carried out under unsatisfactory conditions. In the north and west of the province ploughing was delayed and wheat sowings, in consequence, were also backward. In the Bahia Blanca region, clearing of land for barley and spring wheat was carried out under abnormal conditions owing to the drought. In the southern district, which is the most important wheat-growing region, sowings were already completed, while in the north, on the other hand, by mid-July only 20 % of the area had been sown. Information circulated regarding the damage caused by drought in North America stimulated sowings on the Atlantic coast and it is believed that the area under wheat will be increased.

Province of Santa Fé. — Owing to the heavy rains, sowings in the south were backward in the middle of July but, in view of the quality sown (38. M. A.), it is hoped to make up for lost time given favourable weather conditions. In the north the same area as last year was sown to wheat.

Province of Córdoba. — By the middle of July wheat sowings were almost finished and the general condition of the crop was satisfactory. The humidity of the soil and the mild weather encouraged germination and later the June frosts prevented excessive growth. These climatic conditions made it possible to arrange the varietal distribution of wheat over the period from April to July beginning with the late and ending with the early ripening varieties. The condition of the wheat crop was excellent.

Province of Entre Rios. — Wheat sowing was very backward on account of the excessive rains. The growth of the wheat crop is not up to normal standards.

Province of the Pampas. — The condition of the wheat crop is, generally speaking, good, with a normal and in some places a well advanced growth, except in the western districts of the province, where growth has been delayed by the drought.

Province of Santiago del Estero and San Luís. — Owing to the favourable weather the condition of the crop is good.

(Telegram of 20 August): Sowings are almost completed and the fields have a very good appearance.

Canada: The report on the condition of crops on 31 July showed serious declines from that of the previous month in all field crops The spring wheat crop, at 45, was 37 points below the level of the preceding month. This condition figure together with the winter wheat estimate of nearly 7 million centals (11,600,000 bushels), suggests that the total wheat crop of Canada this year will not quite reach 120,000,000 centals (200 million bushels) and will thus rank with the crops of 1918 and 1919, when the outturn was also below the 200 million bushel level, among the lowest of the last 20 years.

The drought conditions continued generally in the first half of August and extended into Eastern Ontario and parts of Quebec and westwards into British Columbia and Vancouver Island which had previously enjoyed very favourable conditions. Owing to the rapid ripening, harvesting was earlier than usual and by the middle of August threshing was well advanced. The results showed great variations in the yields in the Prairie Provinces. Wheat was reported to be of exceptionally high quality but oats and barley were poor outside a few favoured areas. The yields in general have borne out expectations but in some cases they were a little better than anticipated.

There was little precipitation over southern areas in the first half of the month but there were heavy showers in northern districts, particularly in Alberta. Temperatures in the second week continued above normal in all districts. Stem rust was fairly common in the wheats and was expected to injure the crop while sawfly did considerable damage in Southern Alberta. Grasshoppers have migrated to same areas where crops were good and caused some damage to wheat but more to the coarse grains. Injury to the wheat crop, however, was generally lessened by the rapid ripening. Hail damage occurred at scattered points in Alberta but Saskatchewan escaped injury.

The soil over all areas is generally hard and dry and it was feared that, without abundant and immediate rains, winter cultivation would be impossible.

United States: The August crop report of the Department of Agriculture made a decrease of 5 million bushels in the estimate of the total wheat harvest. The outturn is now expected to reach 380 million centals (633 million bushels), an increase of 1.5 % on the crop of 1935. It will also exceed the short crops of the two preceding years but will be smaller than all other post-war crops.

The month of August began with lower temperatures but in the interior States, where the rainfall of June and July was even lighter than that of 1934, the drought persisted. In the Pacific North-West conditions were better and facilitated the cereal harvest. Moderate temperatures were experienced also in the second week, except from the Missouri Valley and Central Iowa to the south where the heat records were broken at many points, helpful showers were experienced in most areas east of the Mississippi but, with few exceptions, the drought continued from the Mississippi to the Rockies. The threshing of cereals was about completed early in August in the interior States. The spring wheat harvest gave poor yields generally.

The middle part of the month was characterized by a return of abnormally warm weather, especially in the interior, and by scanty rainfall. Drought conditions continued generally. The threshing of spring wheat was mostly completed by this time.

Japan: Owing to favourable weather, the condition of the spring wheat and barley crops is normal.

Palestine: Threshing of cereals is nearly over. The yields vary considerably in the different parts of the country.

Syria and Lebanon· Weather conditions were, in the main, normal but the crops in general are expected to be smaller than those of last year, the rains of this season having been either inadequate or late.

Algeria: Warm and dry weather continued, favouring field work. Prospects have been appreciably reduced by lodging and cryptogamic disease, particularly in the case of wheat. The grain is poorly developed and the quality is disappointing.

French Morocco: The average temperature during July was below normal, but great heat and scirocco followed during the latter half of the month. In most cases the crops did not realize even the poor yields which had been forecast, especially in the case of hard wheat. The harvest has confirmed the bad results expected from the wheat crop. The grain is generally of mediocre quality with a specific weight from 60 to 75 kilogrammes. The barley crop, on the other hand, is above the average.

Tunisia: Weather conditions hindered harvesting operations. The rains delayed ripening of late wheat causing rust to develop. Both the hard and soft wheat crops will be smaller than estimated in the May forecasts.

Australia (Telegram of 14 August) The wheat crop in Western Australia has a healthy appearance but rains are necessary to ensure a satisfactory harvest. In South Australia, rainfall last month was general; the crop is late but has improved in condition in recent weeks. In New South Wales and Victoria the weather has been generally favourable and the condition of the crop is satisfactory.

MAIZE

Austria: Maize is making good progress everywhere except in high districts. The ears are growing satisfactory in the plains.

Bulgaria. The abundant rains which fell in the beginning of July were very beneficial to maize, and, in spite of the hot, dry weather during July, the crop is developing normally.

Hungary: The maize stalks are tall and strong, the leaves dark green, the cobs numerous with a satisfactory grain formation. In the regions with sandy soil, rain is badly needed.

According to the most recent estimate, production of maize this year is about 54,840,000 centals (97,929,000 bushels) against 31,659,000 (56,535,000) in 1935 and 40,843,000 (82,944,000) on the average of the five years ending 1934; percentages, 173.3 and 134.3.

Italy: According to information from the *Banca Nazionale dell'Agricoltura* maggengo maize and the second sowings promise abundant crops.

Portugal: The condition of the maize crops in the main growing areas at the end of July was considered very good. In some of the lowlying districts there were reports of excessive humidity, while in others there was urgent need of rain. The crop is expected to be larger than that of last year which reached 4.6 million centals (8.3 million bushels).

Yugoslavia. The unsettled, hot and rainy weather during July was very favourable to the growth of maize. An abundant crop is expected which may even equal the record crop of 1934. The exportable surplus is estimated at about 5 or 6 million centals;

U. S. S. R.: The area sown up to 10 May was 5,515,000 acres or 85 % of the Plan against 6,845,000 acres (85 %) a year ago.

Argentina (Telegram of 20 August) Harvesting of maize is almost finished and threshing is in progress.

United States: According to the estimate of 1 August, the production of maize this year is 806,000,000 centals (1,439,000,000 bushels) against 1,283,312,000 centals (2,291,629,000 bushels) in 1935 and 1,282,974,000 centals (2,291,025,000 bushels) on the average of the five years ending 1934, percentages, 62.8 and 62.8.

The new estimate, as a result of the abnormal heat and drought of July, shows a decrease of nearly a third from the estimate of the previous month and places this year's crop below the figure of 1934. During August some improvement occurred in eastern parts of the belt but, on the whole, the deterioration continued and the crop will rank as the smallest for half a century.

Maize.

COUNTRIES	AREA					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1-VIII-1936			1-VII-1936			1 VIII-1935		
	1,000 acres			1935 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	...	162	156	...	...	2.4	—	—	2.7	—	—	2.8	—	—
Bulgaria	1,508	1,499	1,739	100.6	86.7	—	—	—	—	—	—	—	—	—
France 1)	796	786	807	101.3	98.7	—	—	—	—	—	—	—	—	—
Romania	12,963	12,773	11,757	101.5	110.3	—	—	—	—	—	—	—	—	—
Czechoslovakia 2)	208	194	3) 222	107.2	93.8	—	—	—	—	—	—	—	—	—
Canada	163	168	144	97.2	113.0	—	—	—	—	—	89	—	—	71
United States	4) 98,517	5) 95,333	5) 103,284	103.3	95.4	—	—	46.8	—	—	72.8	—	—	75.1
French Morocco	1,050	959	848	109.5	123.8	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 533. — *a*) Above the average. — *b*) Average. — *c*) Below the average. — *d*) Excellent — 1) Areas estimated on 1 June. — 2) Crop grown alone — 3) 1934 only. — 4) Area expected to be harvested. — 5) Area harvested.

Surinam: In the first quarter 1936 the condition of the crop still in the fields was less satisfactory owing to the continuous and heavy rains. The harvested fields gave only a satisfactory crop.

Indo-China: The maize harvest was finished with uneven results. Sowings in Cambodia were finished in June. The area under the crop is larger than last year's. The high maize prices have induced growers to substitute this crop for all others, rice included, and to bring new land into cultivation. As a result of the rains, the crops have a good appearance and the harvest promises to be excellent in all places.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area:

	1936 acres	1935 acres
Area harvested in June	336,800	346,900
Area harvested from 1 January to 30 June .	3,350,100	3,144,000
Area of standing crops at the end June. . .	1,089,500	1,138,700

Palestine· The maize crop, where grown, shows normal condition and is nearly mature.

Egypt: Sowing of *nili* maize is nearly over in the Southern Delta and is general in the northern regions and in Middle Egypt. Early cultivation started in Upper Egypt. Germination and growth are satisfactory

French Morocco: In order to combat the alarming situation of cereal crops, the natives have sown much more maize and sorghum this year, it may therefore be estimated that total production of these crops will be above the normal

According to the most recent estimate, the production of maize this year is about 5,732,000 centals (10,235,800 bushels) against 3,072,000 (5,486,000 bushels) in 1935 and 3,496,000 centals (6,242,100 bushels) on the average of the five years ending 1934; percentages 186 6 and 164 0

Tunisia: Maize and sorghum are growing well, considerable areas were sown to these crops.

Union of South Africa The total maize crop of the Union was estimated, according to the conditions prevailing between 15 and 25 June, at 30,004,600 centals (53,579,700 bushels), a decrease of 871,600 centals (1,556,300 bushels) from the estimate of the previous month. Compared with the year 1934-35, when 37,456,000 centals (66,886,000 bushels) were produced, the new estimate indicates a decrease of 19.9 % while the decrease from the 1929-30/1933-34 average (35,955,000 centals or 64,205,000 bushels) the decline is 16.5 %.

The reports received during the same period indicated that the majority of the maize farmers were still busy reaping. The decrease in the estimate was the result of the frost damage and heavy rains experienced during May These conditions, together with the damage caused by cob-grubs have adversely affected the quality of the crop. Harvesting was delayed and the moisture content of the grain was high

RICE

Italy: The *Banca Nazionale dell'Agricoltura* states that the condition of the rice crop during the first fortnight of August continued satisfactory, in consequence of the very favourable weather.

Portugal. The condition of rice was considered good at the end of July, and, unlike the other cereals, the crop was expected to be plentiful.

United States: According to the August estimate, production of rice this year is about 19,620,000 centals (43,600,000 bushels) against 17,159,900 (38,132,000) in 1935 and 18,707,000 (41,572,000) on the average of the five years ending 1934; percentages, 114.3 and 104.9.

Surinam: In the first quarter 1936 preparations for plantings were already began in some districts at the end of March after the commencement of the rain.

Taiwan: Sowing for the second rice crop took place under normal conditions; the growth is regular and uniform.

Indo-China: Harvesting of the late 5th. month varieties was completed in Tonkin in June. Good yields are reported. Sowings of 10th. month rice have been completed in all parts and replanting is in progress. Regular rains favoured the growth of mountain rice in central areas. The 5th. month crop of Annam gave satisfactory yields. Transplanting of 8th. month rice is in progress. Sowing and transplanting of 10th. month rice was going forward at a good pace and in good conditions. In Cochin-China and Cambodia, ploughing, sowing and replanting were going forward in all provinces. Standing crops were, on the whole in good condition and the 1936-37 rice season hitherto has been satisfactory.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:—

	1936 acres	1935 acres
Area harvested in June:—		
Wet padi	2.058,000	1,642,500
Dry padi	30,100	18,000
Area harvested 1 *January to* 30 *June:—*		
Wet padi	6,191,000	6,276,800
Dry padi	934,600	932,800
Area of standing crop at the end of June:—		
Wet padi	2,091,300	1,901,800
Dry padi	45.500	22,000

Siam: According to the annual report on the rice crop of Siam for the year 1935-36, the area planted, 8,309,000 acres, is the greatest on record for the country, being 0.8 % larger than that of 1934-35 and 6 6 % above the average of the five years ending with 1933-34. The total damaged area, mainly due to flood, insects, rats and crabs, amounts to 1,003,000 acres, being 12.06 % of the planted area, compared with 12.10 % in 1934-35, while the average percentage for the preceding ten years is 11.56. The area harvested is 7,306,000 acres, compared with 7,247,000 acres in 1934-35 and with an average of 6,900,000 acres for the five-year period ending 1933-34; percentages: 100.8 and 105.9. The production amounts to 103,775,000 centals (230,607,000 bushels) of rough rice (padi), as against 101,364,000 (225,249,000) in 1934-35 and an average of 100,945,000 (224,317,000) during the five preceding years; percentages: 102.4 and 102.8. The yield amounts to 12.50 centals of padi per acre, compared with 12.30 in 1934-35 and with an average yield of 13.25 during the preceding ten years.

Egypt: The *sefi* rice crop grows satisfactorily. Formation of ears has started in several early cultivations. Watering, draining and weeding are in progress. Transplanting and manuring are going on in late sown areas and some of the general cultivations.

Sowing of the early cultivation of *nili* rice was started in the second week of of July. Germination and growth are satisfactory.

POTATOES

Germany: The cool, damp weather has, generally speaking, been favourable to the potato crop.

Austria: Potatoes are growing generally in good conditions and give promise of high yields. Lifting of the early crops has begun with good results though the tubers are of unequal size. Owing to the excessive rain. there are cases of rotting in places of medium height while the tubers are not well developed.

Belgium: The cold, damp weather in July was unfavourable to the potato crop.

Irish Free State: Conditions during July favoured growth and the crops made good progress.

The area under potatoes is slightly below that of last year but the yields will be larger.

Potatoes.

COUNTRIES		AREA					CROP CONDITION †)								
		1936	1935	Average 1930 to 1934	% 1936		1-VIII-1936			1-VII-1936			1-VIII-1935		
		1,000 acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	a)	1) 331	325	600	—	—	2.7	—	—	2.6	—	—	—	—	3.1
	b)	...	6,458	6,469	...	...	2.5	—	—	2.7	—	—	2 9	—	—
Austria		...	494	490	...	...	2.3	—	—	2.3	—	—	2.9	—	—
Belgium		402	403	413	99.8	97.4	—	—	—	—	1)	—	—	—	—
Bulgaria		42	36	34	116.9	125.0	—	—	—	—	—	—	—	—	—
Denmark		...	186	175	...	...	—	—	97	—	—	—	—	—	96
Estonia		...	182	170	...	...	—	—	87	—	—	—	—	—	91
Finland		215	204	191	105.4	112.4	—	—	—	—	—	—	—	—	—
England and Wales		456	463	476	98.5	95.7	—	—	—	—	—	—	—	—	—
Scotland		133	132	139	101.1	96 0	—	—	—	105	—	—	—	—	—
Northern Ireland		132	129	138	102.1	95.7	—	—	—	—	—	—	—	—	—
France		3,465	3,472	3,463	99.8	100.0	—	—	—	—	—	—	—	—	—
Hungary		726	749	711	97.0	102.2	—	—	—	—	—	—	—	—	—
Lithuania		442	436	423	101 4	104.5	123	—	—	117	—	—	120	—	—
Luxemburg		41	41	40	99.8	100.1	2.2	—	—	2.5	—	—	—	—	3.4
Norway		...	123	119	...	...	104	—	—	—	—	92	—	—	98
Netherlands		320	344	395	93.2	81.2	—	—	—	101	—	—	—	—	—
Poland		...	6,998	6,742	...	...	2)3.5	—	—	3.4	—	—	2)3.3	—	—
Sweden		...	319	331	...	...	—	—	—	3)105	—	—	—	—	—
Switzerland		116	113	116	102.6	100.5	63	—	—	78	—	—	69	—	—
Czechoslovakia	a)	105	99	90	105.9	117.1	—	—	—	—	—	—	—	—	—
	b)	1,765	1,752	1,692	100.7	104.3	—	—	—	—	—	—	—	—	—
Canada		515	507	556	101.6	92.6	—	—	—	—	—	95	—	—	—
United States		3,217	3,551	3,426	90.6	93.9	—	—	—	—	—	—	80.7	—	—
Algeria	a)	18	18	24	104.2	77.4	—	—	—	—	—	—	—	—	—
	b)	25	23	23	108.9	106.0	—	—	—	—	—	—	—	—	—

---

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 533. — Including the Saar territory. — 2) In the middle of the preceding month. — 3) In the middle of the month. — *a*) Early potatoes. — *b*) Late potatoes.

France: The potato crop continues to suffer severely from the spread of mildew. The damage done by the continuous rains and storms which have prevailed this summer is considerable. Most of the crops are rotting.

Great Britain and Northern Ireland Owing to the unusually wet conditions of July, all root crops are suffering from weeds The early potatoes are yielding a fully average crop. The main crop made good growth but some blight is reported in most areas

The area under the crop in England and Wales is 7,000 acres smaller than that of the previous year but in Scotland there is an increase of 1,000 acres The acreage returned in Northern Ireland is also larger

Hungary The leaf of the potato crop is abundant and green, the tubers are making good progress

Italy According to information received from the *Banca Nazionale dell'Agricoltura*, the potato crop is making good progress as a result of the favourable weather and a good production is anticipated, although in some places the crop has suffered from mildew

Latvia 39 5 % of the agricultural correspondents reported the condition of the potato crop as average on July 15th, 46 6 % above the average and 13 9 % below the average

Lithuania The warm weather which prevailed in July was favourable to potatoes which suffered less from drought than the cereal crops

Production of potatoes

COUNTRIES		English measures			American measures			% 1936	
		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 100	Average 100
		Thousand centals			Thousand bushels				
Germany	s)	1) 33,864	28,790	63,700	56,439	47,982	106 164	—	—
Hungary		59,430	31,503	38 893	99,048	52,504	64 820	188 7	152 8
Luxemburg		4,339	3,196	4 236	7,231	5 326	7,060	135 8	102 4
Netherlands		54 675	58,624	68,343	91 123	97,704	113,903	93 3	80 0
Switzerland		13,316	14,956	16,190	22 193	24,927	26,983	89 0	82,2
United States		177,000	232,609	221,944	295,000	387,678	369,907	76 1	79 7

s) Early potatoes — 1) Including Saar territory

Luxemburg The potato crop has suffered from the continuous rains during July and is threatened with disease

Netherlands Despite previous unfavourable weather, the crop developed satisfactorily, thanks to the rainfall of the last few weeks

Poland. The condition of the potato crop which had suffered from excessive humidity of the soil at the end of June and the beginning of July, had considerably improved by the middle of the month

Portugal. A poor potato crop is expected in the Oporto area In some districts disease has caused damage but in others high yields are anticipated. On the whole, a normal crop, that is, a crop larger than that previously expected, is anticipated.

Switzerland The wet, stormy and cold weather which prevailed in July was very unfavourable to the potato crop. While at the beginning of July it was estimated that the yield would amount to 78 % of a very good crop, prospects declined at the end of July to 63 %. The crop has been attacked by potato disease and is deteriorating

Yugoslavia The variable and rather rainy weather during the month of July was very favourable to the growth of potatoes, and a very abundant crop is expected this year.

Algeria The July plantings progressed normally Lifting of the late varieties was finished with generally satisfactory results.

SUGAR

Owing to the particular importance of weather conditions in the growth of sugar beets and in their final development during the period from the end of spring till the beginning of August, it will be useful to make a general survey of the situation of sugar beet crops in Europe at the close of this period It will thus be possible, if not to make a first forecast, at least to form an advance idea of the volume of production of sugar beet in Europe

In June the European sugar beet growing countries, generally speaking, with the exception of a few rare cases of slight importance, enjoyed definitely favourable conditions, as the weather, cold and damp at the beginning of the month, improved from day to day, the heat necessary to the young crops for their gradual development increasing regularly

Sugar beet

COUNTRIES	Crop condition †)								
	1st August 1936			1st July 1936			1st August 1935		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
Germany	2 4	—	—	2 6	—	—	2 7	—	—
Austria	2 0	—	—	2 1	—	—	2 8	—	—
Denmark	—	—	99	—	—	—	102	—	—
Lithuania	117	—	—	110	—	—	120	—	—
Netherlands	1) 106	—	—	—	1) 100	—	—	—	1) 99
Poland	1) 3 4	—	—	1) 3 2	—	—	1) 3 3	—	—
Sweden	1) 113	—	—	—	—	—	1) 103	—	—
Switzerland	89	—	—	88	—	—	80	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 533. — 1) In the middle of the preceding month

In July the weather was also favourable to the crops and in some countries it was even very favourable The sunny days were suitably alternated with days of rain which brought sufficient humidity to the soil, though in some cases the moisture was more than sufficient. France, England and the U. R. S. S. were, however, exceptions to the general situation

In France the weather in July was too rainy, with the result that field work was partially stopped, particularly in the Sommarea, owing to the heavy rains. The leaves developed too exuberantly, to the detriment of the sugar content of the roots. The condition of the crops was even worse in England owing to the very excessive rains, which in some areas caused floods. Field work was often interrupted, even work of such importance as thinning. Here, as in France, and perhaps to an even greater extent, the growth of the leaves was excessive. In the U. R. S. S. there was a serious invasion of insects (weevils and beet webworm) destroying in some regions a quarter or a third of the sowings, which this year had been carried out with particular care.

During the first fortnight in August, owing to the favourable weather, the beets progressed in a very satisfactory manner. The roots grew steadily, surpassing normal growth, and although the sugar content is somewhat poor, the quantity of sugar per root is very high

During the first fornight in August the weather in Germany was generally favourable and in several areas even very favourable In the whole region between Brunswick and Halle, there were very violent local storms with abundant rains, but as a general rule days of rain alternated with hot, sunny days to the great advantage of the beet crops. At the time of writing, however, the crops require continued hot, dry weather In Silesia crop condition is satisfactory, though some damage is reported from white worms; the outlook is also good in Southern Germany and the Rhineland, where however the rains were excessive and an improvement in the weather is hoped for In Belgium rather damp weather has prevailed and from the appearance of the fields a good yield is anticipated, though some districts report cases of beet leaf spot, mosaic and yellowing disease. Taken as a whole, in Belgium the growth is too luxuriant and the leaves over-developed In Denmark the wet weather was very favourable to beet.

Crop condition is good in France, though bolter is rather widespread; it is good, too, in Italy, the Netherlands and Poland, where weather and soil conditions have been favourable to the growth of the roots and a forecast of a good yield is justified, though some damage has been caused by plant-lice and white worms In Czechoslovakia crop condition is good in spite of the excessive moisture of the soil in certain regions and the prevalence of beet leaf spot. In Yugoslavia the outlook is good as well as in many other European sugar beet growing countries.

The outlook is not so good in England where the very cold wet weather has been prejudicial to beets, the leaves being for the most part sered; nor is it good in Sweden, where the leaves, on the contrary. have suffered from drought, nor yet in the U. R. S. S. where, in addition to the insect damage of July mentioned above a fruther deterioration has been caused by drought, as is also the case in Sweden.

In view of the generally favourable information in regard to the growth of the sugar beet crop, except as regards luxuriance of the leaves and a rather low sugar content, as is also the case in the countries for which we publish the results of the weekly analyses of beets, the outlook in the majority of countries is fairly good, and there is therefore reason to believe at the present moment that the European countries, with the exception of those of the U. R. S. S. will have crops similar to those harvested last season.

1936-37 Season — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934
	oz.	oz.	oz	oz	oz.	oz.	%	%	%	oz.	oz.	oz
					3rd. WEEK OF JULY.							
Germany	5.0	3.5	1) 4.8	13.4	8.0	1) 12.1	10.3	11.9	1) 11.8	0.5	0.4	1) 0.5
Belgium	5.7	2.5	4.9	22.8	10.0	15.0	8.6	9.0	9.6	0.5	0.2	0.5
					4th. WEEK OF JULY.							
Germany	6.4	5.2	6.2	14.5	11.8	14.4	11.8	12.7	12.2	0.7	0.6	0.7
Poland	6.6	—	—	12.9	—	—	12.8	—	—	0.8	—	—
					5th. WEEK OF JULY.							
Germany	8.5	6.7	2) 7.4	17.9	12.7	2) 13.7	12.0	13.9	2) 13.0	1.0	0.9	1) 1.0
France	6.0	6.0	1) 8.4	21.1	8.0	1) 15.2	11.1	14.6	1) 13.4	0.7	0.8	1) 1.1
Netherlands	11.3	9.9	—	—	—	—	12.4	13.8	—	1.4	1.4	—
Czechoslovakia	10.2	5.7	8.1	18.1	9.5	13.8	13.3	15.1	14.0	1.4	0.9	1.1
					1st. WEEK OF AUGUST.							
Germany	10.6	7.4	8.6	20.3	12.9	16.0	12.3	16.1	13.0	1.3	1.1	1.1
Belgium	10.0	6.1	2) 10.4	27.8	13.8	2) 24.2	11.2	12.9	2) 11.8	1.1	0.8	2) 1.2
Denmark	7.4	7.9	2) 6.8	15.6	10.8	2) 10.8	11.2	15.2	2) 12.1	0.8	1.2	2) 0.8
France	7.9	6.0	1) 8.4	22.8	8.0	1) 15.2	11.7	14.6	1) 13.4	0.9	0.9	1) 1.1
Poland	6.9	6.6	2) 7.8	11.9	10.7	2) 12.1	13.7	14.7	2) 13.4	0.9	1.0	2) 1.0
Czechoslovakia	11.6	6.6	9.5	18.6	10.0	14.1	13.5	16.3	14.6	1.6	1.1	1.3
					2nd. WEEK OF AUGUST.							
Germany	11.5	8.6	10.2	20.1	12.1	16.5	13.9	16.9	14.0	1.6	1.4	1.4
Denmark	8.6	9.2	2) 7.1	15.5	11.0	2) 11.0	13.0	15.9	2) 12.3	1.1	1.5	2) 0.9
France	9.2	6.7	1) 9.8	23.7	10.4	1) 18.9	13.3	16.8	1) 13.0	1.2	1.1	1) 1.5
Poland	9.2	6.9	3) 9.1	13.7	9.6	3) 12.6	14.1	15.5	3) 14.1	1.3	1.1	3) 1.3
Czechoslovakia	12.8	7.3	10.9	18.8	9.6	14.0	14.5	17.6	15.0	1.9	1.3	1.6
					3rd. WEEK OF AUGUST							
Germany	13.5	10.8	11.6	21.2	13.9	16.3	15.1	15.2	14.9	2.0	1.6	1.7
Denmark	10.5	11.0	1) 9.0	16.3	11.1	1) 12.6	13.9	16.5	1) 13.4	1.5	1.8	1) 1.2
France	10.7	8.1	11.6	23.8	10.4	16.7	14.0	16.2	14.0	1.5	1.3	1.6
Czechoslovakia	14.5	8.5	1) 12.2	18.8	10.0	1) 14.5	15.1	17.4	1) 15.7	2.2	1.5	1) 1.9

1) Average of 4 years. — 2) Average of 3 years. — 3) Year 1931.

In the United States sugar beets are suffering like other crops from the unfavourable effects of drought and heat and a slightly lower unit yield than the average is anticipated.

E. R.

* * *

Germany: The cool, damp weather was generally favourable to the cultivation of sugar beets.

Austria: Sugar beet is thick and foliage is plentiful, the roots are making rapid growth.

Bulgaria: According to information received from the Ministry of Agriculture, this year the area sown to sugar beets has again undergone considerable reduction (50 % in relation to last year's figures) The abundant rains which fell in the beginning of July, however, have been very beneficial and towards the end of the month the beets were in good condition in spite of the hot, dry weather which prevailed throughout the month

Irish Free State: The acreage under sugar beet is greater and yields are expected to be larger

France The condition of the sugar-beet crop is generally speaking good in all regions, while in some places it is well advanced

Great Britain and Northern Ireland The agricultural returns show slight declines in the sugar beet acreage both in England and Wales and in Scotland. Present indications are that the yield will be about average but the crop needs more sunshine

Hungary The leaves of the sugar beets are abundant, the roots are developing well and show no signs of disease Rain is urgently needed

Italy The *Banca Nazionale dell'Agricoltura* states that the condition of sugar beets varies in the different regions During the first fortnight of August deliveries began, the quantities not being very good and in some regions even poor

Production of sugar beet.

COUNTRIES	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 — 100	Average — 100
	Thousand centals			Thousand short tons			%	
Hungary	23,949	16,246	22,676	1,197	812	1,134	147 4	105 6
Netherlands . . .	35,274	33,648	37,188	1,764	1,682	1,859	104 8	94 9
—								
United States . .	176,000	158,160	178,732	8,800	7,908	8,937	111 3	98 5

Romania. The persistent drought of the second half of July hindered growth and in many places destroyed weeds. The good rains of the first days of August were of great assistance and, in some places, saved the crops. Subsequently, growth made progress and development was satisfactory. The improvement in the crops in Eastern Moldavia and parts of Bessarabia which suffered particularly will be much more difficult

The condition of the crops in the east of the country is exceptionally good. No serious insect or cryptogamic damage is reported. In Central Transylvania *Cercospora beticola* is reported in many districts.

Czechoslovakia: According to an analysis made by the Research Institute of the Sugar Industry, the condition of 52 % of the sugar-beet crop during the first week in

August was very good, that of 46 % was good and that of 2 % satisfactory. Percentages for the corresponding period of last year were respectively as follows: 13 %, 38 %, 48 % and 1 % poor. The weight of the root is in general considerable but the sugar content is below the average.

Yugoslavia: Sugar beets, favoured by the hot, damp weather, grew well during the month of July.

Production of cane sugar.

COUNTRIES	1935-36 1)	1934-35	Average 1929-30 to 1933-34	1935-36 1)	1934-35	Average 1929-30 to 1933-34	% 1935-36 1934-35 = 100	% 1935-36 Average = 100
	Thousand centals			Short tons				
AMERICA.								
Antigua	476	390	391	23,800	19,500	19,565	122	122
Argentina	8,510	7,613	7,612	425,000	380,650	380,583	112	112
Barbados	2,845	1,825	2,129	142,200	91,267	106,452	156	134
Brazil	17,527	17,079	20,601	876,000	854,000	1,030,025	103	85
Cuba	57,982	56,838	65,701	2,900,000	2,841,800	3,285,017	102	88
Ecuador	463	425	438	23,000	21,300	21,889	109	106
United States (La)	6,834	4,680	3,880	340,000	234,000	194,000	146	176
Jamaica	2,094	1,719	1,354	105,000	85,960	67,720	122	155
Martinique	1,124	1,038	983	56,000	51,916	49,171	108	114
Mexico	7,121	5,842	4,769	356,000	292,000	238,423	122	149
Peru	8,708	8,597	8,988	435,000	429,854	449,405	101	97
Puerto Rico	18,960	15,628	17,810	950,000	781,382	890,466	121	106
Dominican Republic	9,568	9,501	8,425	478,000	475,051	421,233	101	114
Trinidad	3,197	2,638	2,250	160,000	132,000	112,475	121	142
Venezuela	493	419	473	24,640	21,000	23,640	118	104
Total America	*145,902*	*134,232*	*145,804*	*7,294,640*	*6,711,680*	*7,290,064*	*109*	*100*
ASIA.								
Taiwan	19,820	21,289	17,097	990,997	1,064,439	854,855	93	116
India 2)	132,272	114,442	87,494	6,614,000	5,722,000	4,375,000	116	151
Japan 3)	2,435	2,510	1,839	121,800	125,500	91,965	97	132
Java	12,334	11,322	45,143	616,670	566,091	2,257,099	109	27
Philippine Is. 4)	24,030	16,865	24,141	1,200,000	843,000	1,207,039	142	100
Total Asia	*190,891*	*166,428*	*175,714*	*9,543,467*	*8,321,030*	*8,785,958*	*115*	*109*
AFRICA.								
Egypt	2,907	3,010	3,093	145,400	150,515	154,624	97	94
Mauritius	6,184	3,943	4,990	309,200	197,200	249,500	157	124
Mozambique	1,756	1,863	1,789	87,800	93,130	89,000	94	98
Reunion	2,004	1,402	1,217	100,195	70,100	60,869	143	165
Union of South Africa	8,410	7,175	7,071	420,500	358,735	353,566	117	119
Total Africa	*21,261*	*17,393*	*18,160*	*1,063,095*	*869,680*	*907,559*	*122*	*117*
OCEANIA.								
Australia	14,837	14,473	12,767	742,000	723,700	638,347	103	116
Hawaii	19,621	19,048	19,963	980,000	952,000	998,160	103	98
Fiji Is.	2,943	2,491	2,264	147,200	125,000	113,183	118	130
Total Oceania	*37,401*	*36,012*	*34,994*	*1,869,200*	*1,800,700*	*1,749,690*	*104*	*107*
TOTALS	**395,455**	**354,065**	**374,672**	**19,770,402**	**17,703,090**	**18,733,271**	**112**	**106**

1) Approximate data. — 2) Production of *gur*. — 3) Production of sugar (refined and raw) and molasses — 4) Production of sugar and *panocha*.

U. R. S. S.: Towards the end of July Ukraina had finished hoeing 84.4 % of the area to be sown to sugar beets under the plan. The districts of Kursk and Voronej had completed only from 30 to 40 % of the plan.

The area sown up to 10 May 1936 was 2,983,000 acres (97 % of the Plan) against 3,161,000 acres (101 %) a year ago. Corresponding percentages in 1934 and 1933 were 96 % and 70 % respectively.

Surinam: In the first quarter 1936, the March rains had a good effect on the crop and condition was satisfactory. Diseases and pests were not serious.

Formosa: Growth of sugar cane planted since last summer is proceeding under normal conditions.

India: According to the first estimate, the area under sugar cane this year is about 4,204,000 acres against 3,633,000 in 1935-36 and 3,016,000 on the average of the five years ending 1934-35; percentages, 115.7 and 139.4.

Java (*Aneta*): The Pasuruan Experiment Station reports that in the first half of July the east monsoon prevailed over the whole cane area. Old plantings are on the whole good; unit-yields are only locally backward. Young plantings developed rapidly; *bibit* rot appeared on a few estates. Many estates have already completed plantings. Weeds have been troublesome here and there but there are no serious indications of diseases or pests despite locally high percentages of top borers and stalkborers (in East and West Java) in the young plantings.

In the latter half of July the weather changed, being characterized by oppressive heat and at times by clouded sky. There was only local and slight rainfall. Old plantings are generally in good condition though in places there was a tendency to lower yields.

The weather of the first half of August was of a transitory character with mist, heat and local rain. The old cane plantations are in good condition while the new plantations are developing favourably. Weeds and stem disease are reported in some areas.

Egypt: Sugar cane crop is progressing owing to suitability of weather. The internodes are being formed in early cultivations. Watering is general. Hoeing and manuring of late areas are over.

Union of South Africa: In June the condition of the sugar cane crop averaged 7 % below normal. Light rains fell during the month and favourable ripening weather prevailed.

VINES

Germany: Although the weather during July was unfavourable, the condition of the vines is fairly good. Flowering was satisfactory and grape-formation promising. Owing to the rainy weather there has been some development of parasites. Warmer and drier weather is necessary to maintain the present good condition.

Austria: The vines continue to make vigorous growth. Mildew is reported on leaves in all places and occasionally on the grapes which are rapidly thinning Owing to the excessive rain, cleaning of vines could not be done adequately and the complaints of weeds are frequent. Mildew and oidium are spreading continuously in spite of anticryptogamic treatment, which, owing to the rains, is unsuccessful. The crop forecasts, which were previously good, have been reduced considerably.

Bulgaria: The excessive humidity of the first week in July favoured the spread of mildew on the vines. In spite of the hot, dry weather which prevailed during the rest of the month, it is expected that this year's production of grapes will be affected by the damage caused by mildew

France· The vineyards have been damaged by hailstorms but the improvement of the weather in the South has checked the progress of mildew. In spite of all the care bestowed upon the vines, they have suffered severely from the continuous and abundant rains and on the whole prospects are unfavourable

Vines.

COUNTRIES	AREA PLANTED					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1 VIII 1936			1-VII 1936			1 VIII 1935		
	1,000 acres			1935 = 100	Aver 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany s)	...	177	177	...	...	2 1	—	—	2 0	—	—	2 1	—	—
Austria s)	.	67	69	.		2 2	—	—	1 8	—	—	1 8	—	—
Greece	366	349	329	104 8	111 2	—	—	—	—	—	—	—	—	—
Switzerland	32	33	32	99 5	102.6	—	—	61	—	—	70	—	—	90
Czechoslovakia	62	58	48	106 2	130.1	—	—	—	—	—	—	—	—	—

†) See Cereals table and note on page 533 — s) Area bearing

Greece Rainy weather has continued to prevail even during the month of July, thus favouring the spread of mildew

The first forecasts in regard to the harvest are far from being satisfactory, production is expected to be mediocre and about 30 % lower than that of last year

Italy The *Banca Nazionale dell'Agricoltura* reports that after an unfavourable period due to unsettled weather, the vines recovered somewhat during the first fortnight of August and the improvement in conditions was beneficial to the ripening of the grapes Damage caused by mildew, oidium and shedding has slightly decreased Crop prospects are variable, in some districts a good crop is expected, in others, it will be poor on account of the damage caused by severe attacks of mildew and in some cases by hail

Luxemburg The persistent rains during the month of July were favourable to the development of cryptogramic and other diseases.

Crop condition of vines on 1 August was 2 9 according to the system of the country, against 2 4 on 1 July 1936 and 2 6 on 1 August 1935.

Portugal Vines were affected by oidium in July but normal yields exceeding those of last year are expected

Switzerland The vines have suffered from the cold and rainy weather prevailing in July Mildew has assumed serious proportions in certain districts, especially in recently planted vineyards, but, as a result of the intensive measures to combat the disease, serious damage seems to have been averted. Worm has caused much damage. As a result, prospects have declined from 70 % of a very good crop to 61 %. The grapes are well developed; from the point of view of quality, the crop has not suffered up to the present from the bad weather If the autumn weather is favourable, the quality of the wine should be good.

Yugoslavia: The variable and rather rainy weather in the chief vine producing regions, particularly during the last decade of July, was not very favourable to the growth of the vines, on which cryptogamic diseases have been observed. Prospects at the beginning of August were not very good and it is expected that this year's harvest will be less abundant than that of last year.

Algeria: Unfavourable weather conditions have caused the shedding of fruit and cryptogamic disease. The crop is expected to fall short of the normal and below that of last year, Substantial hail damage has occurred in some places.

French Morocco: The hot, dry weather stopped the progress of mildew and the vines have now a less desolate appearance as the new leaves are untouched. According to present estimates, there will be a serious deficit on the total crop.

Tunisia. As a result of mildew, there will be a slight decline in production; oidium is appearing and is causing some damage In the south, on the other hand, the growth of the crop is mainly very good

OLIVES

Greece The weather in June and July was, generally speaking, unfavourable to the growth of olives, and serious damage was caused by cryptogramic diseases and by parasites.

The prospects for a good harvest which existed at the end of June have become less and less favowrable during the last two months and it now appears that the production of olives will be small

Italy According to information received from the *Banca Nazionale dell Agricultura,* the growth of the olives was normal, treatment is being given for the olive fly During the first fortnight of August confirmation was received of reports from various regions regarding shedding in consequence of the summer rains Fruit formation varies in the different regions but it may be considered as fairly good

Yugoslavia The olive crop in Dalmatia was seriously damaged by the frequent rains during July It is expected that the total crop this year will be very small

Algeria · Fruiting is rather uneven, in many places it is poor and in some no crop will be produced The yield will be low compared with last year

According to the latest estimates for the year 1935-36, the production of olives was 2,441,000 centals against 2,707,000 centals in 1934-35 and 3,350,000 centals in the years 1929-30/1933-34, percentages, 90.1 and 72 8 Of this total, only 175,900 centals represent olives for preserving (184,300 in 1934-35 and an average of 54,900, 95 0 % and 68.6 %) The production of oil is estimated at 286,400 centals (3,764,000 American gallons), a decrease of 21 6 % on last year (324,000 centals or 4,258,000 American gallons) and one of 24.6 % from the average (379,600 centals or 4,989,000 American gallons). The number of bearing olive trees is estimated at 8,493,000 compared with 8,107,000 last year and an average of 7,521,000. The total number of olive trees, excluding wild olive trees, is 9,860,000, of which 4,591,000 are cultivated in plantations occupying 175,000 acres against 9,400,000, 4,432,000 and 170,000 acres respectively last year.

French Morocco: The trees, which had flowered profusely are suffering from the effects of cryptogamic disease aggravated by the shedding of a large quantity of the young olives.

Tunisia: On account of the drought it is anticipated that the olive crop will be mediocre.

FLAX

Austria: The flax crops have grown well. Flowering is over and pulling has begun. Where lodging has occurred and where the fields have been overrun by weeds, the flax has suffered some damage. Good yields of seed are expected.

Belgium: The cold, damp weather in July was unfavourable to the growth of flax.

Irish Free State: Conditions during July favoured growth and the crops made good progress. Some flax crops were tossed by heavy rain and wind.

The area under flax this year is greater but yields will be slightly less.

Latvia: Condition of the flax crop on 15 July according to reports from agricultural correspondents: 39 8 % average, 16.6 % above the average, 43.6 % below the average.

Lithuania· The flax crops have considerably improved in the northern and western districts where the major portion of the crop is grown and where the weather was damper than in other parts of the country.

U. S. S. R.: Weather conditions in July were favourable for flax and ripening was much in advance of last year. On 5 August harvesting operations of the Dolgunetz flax were completed on an area of 3,997,000 or 76 % of the cultivated area while last year harvesting continued up to the end of August. Up to the same date, however, only 26 % of the crop had been retted

Flax sowing progressed more rapidly this year On 10 May 3,675,000 acres (76 % of the Plan) had been sown against 3,679,000 acres (72 %) last year. The corresponding percentages in 1934 and 1933 were 53 % and 14 % respectively.

Area and crop condition of flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1-VIII 1936			1-VII-1936			1-VIII-1935		
	1,000 acres			1935 100	Aver. = 100	*a)*	*b)*	*c)*	*a)*	*b)*	*(c*	*a)*	*b)*	*c)*
Germany	100	55	18	182.3	565.9	—	—	—	—	—	—	—	—	—
Austria	...	5	6	...	...	2.5	—	—	2 4	—	—	2.7	—	—
Belgium	52	47	35	112.6	149.7	—	—	—	—	*f)*	—	—	—	—
Bulgaria	12	6	1	215.1	836.1	—	—	—	—	—	—	—	—	—
Estonia	...	73	51	...	...	—	—	99	—	—	—	116	—	—
Finland 1)	12	12	10	102.9	123.9	—	—	—	—	—	—	—	—	—
N Ireland	25	28	13	91 4	188 0	—	—	—	—	—	—	—	—	—
Hungary	16	...	2) 30	...	53 4	—	—	—	—	—	—	—	—	—
Lithuania 1)	208	194	146	107.0	142 0	110	—	—	—	100	—	123	—	—
Netherlands	32	23	17	139.4	188.8	—	3)64	—	3) 66	—	—	3)66	—	—
Poland	...	305	253	...	...	—	3) 3.0	—	—	3) 3.0	—	3) 3.4	—	—
Czechoslovakia	36	33	22	109.9	162.7	—	—	—	—	—	—	—	—	—
Canada	237	214	432	110.5	54.8	—	—	45	—	—	83	—	—	88
United States	1,698	2,014	2,107	84.3	80.6	—	—	—	—	—	—	71.8	—	—
India	3,402	3,410	3,118	99.8	109.1	—	—	—	—	—	—	—	—	—
Egypt	6	5	3	124.7	182 8	—	—	—	—	—	—	—	—	—
Argentina	7,290	6,573	7,702	110 2	94.6	—	—	—	—	—	—	—	—	—

†) For an explanation of the signs and figures of crop condition, see note on page 533 and the cereals table — 1) Flax and hemp — 2) Year 1934 — 3) In the middle of the preceding month.

Argentina: In the province of Buenos Aires flax sowing had not begun by the middle of July. In the province of Santa Fé sowings had been begun with great difficulty on account of the extreme humidity of the soil; in the north of the province 60 % of the area had already been sown and the area under flax may exceed that of last year. In the province of Córdoba sowings were normal and the condition of the flax crop promises an excellent production. At Entre Rios the condition of the crop was not good on account of the humidity of the soil, which has caused the plants to develop excessively. At Santiago del Estero the crop requires a much lower temperature in order that it may take root satisfactorily.

(Telegram of August 20): Flax sowings are almost completed and the fields have a very good appearance.

COTTON

Bulgaria: The damp weather during the first days of July was not favourable to the growth of cotton which was severely attacked by cryptogramic diseases. The return of hot, dry weather improved the condition of the crop which is now developing normally.

Greece: According to information received from the Greek Cotton Institute, the crop situation improved considerably during July. The rains which fell in May and June, and even in July were specially favourable to cotton grown in the non-irrigated regions. On the other hand, cotton grown on irrigated land suffered from excessive humidity. The plantations in the Peloponnesus are in a very satisfactory condition; those in Continental Greece are not quite so satisfactory. In Thessaly there is a noticeable improvement, while in Macedonia the improvement is still greater and is even more rapid. Hoeing is progressing well everywhere, two and even three hoeings are being attempted this year as againt one only last year.

Up to the present no important damage has been caused by disease or by parasites.

A recent survey made by the Greek Cotton Institute shows that the area sown to cotton this year, classified by regions, is as follows:

	1936 acres	1935 acres
Macedonia-Thrace	40,279	37,289
Thessaly	16,136	10,873
Continental Greece	98,152	75,319
Peloponnesus	17,347	9,291
	171,914	132,772

U. R. S. S.: The month of July was very hot and dry in all the cotton-growing districts. These conditions were generally speaking very favourable for the formation and ripening of the bolls. In the southern regions of Tadjiikistan the American cotton bolls were almost ripe at the end of the month and some bolls opened. By July 20 the fourth stage of the preparation of plots and hoeing had been accomplished throughout the Union for a total of 68% of the planned amount. In Uzbekistan a third irrigation was made for 67.8 % of the plan, a fourth for 36 % and a fifth for 15 % of the plan: fertilizers were used this year in this district over an area of 432,400 acres..

Cotton sowing began ten days earlier than last year and was approaching completion in the second decade of May. The area sown up to 10 May was 4,843,000 acres, or 97 % of the Plan against 4,552,000 (95 %) a year ago The corresponding percentages in 1934 and 1933 were 88 % and 78 % respectively

Argentina In the year 1935-36 the *Junta nacional del Algodón* conducted a census of the area under cotton in the Republic. The results of this census indicate that 783,382 acres were cultivated in 1936, or 10 8 % more than in the preceding year Compared with the average of the years 1929-30 to 1933-34 the increase is 120 4 %. The figures show the striking development which has taken place in cotton growing in Argentina

Compared with the previous estimate made in January 1936, the new estimate is about 14 % smaller Much of this decrease is due to the drought which has prevailed in all areas at sowing time and to the damage caused by the heavy rains of December and January in the Chaco and in Corrientes, where 80 % and 8 % respectively of the total cotton area is situated.

The total number of holdings (*chacras*) which grew cotton in 1935-36 was 25,929 with an average of 30 1 acres per holding 14,319 of these holdings were in the Chaco with an average of 44 5 acres per holding

The first estimate places production at 1,691,000 centals (353,800 bales) of ginned cotton against 1,411,800 centals (295,400 bales) last year and an average of 772,600 centals (161,600 bales) in the period 1929-30/1933-34, percentages, 119 8 and 218 9 The average ginning outturn works out at 27 1 %. The number of ginning mills set up in the whole country is 125

United States (Report of 15 July) Temperatures have been near normal in the western portion of the belt and considerably above normal from the Mississippi Valley eastwards Showers have fallen in most districts of the south-western, central, and eastern portions of the belt and were beneficial in the south-east In Texas the crop improved generally, except in parts of the South where rain favoured weevil infestation In Oklahoma crop progress was only fair, but the condition of the crop continued good, though rain was needed Some blooms were showing to the northern limits of the State In the Mississippi Valley States crop progress was mostly satisfactory In Georgia and North and South Carolina showers were helpful to the crop, though plants were mostly small and stands irregular

(Report of 22 July) Temperatures over most of the cotton belt have been moderate, with showers rather general, except in the north-western portions, and crop progress in this area has been generally poor Elsewhere in the belt, however, mostly satisfactory progress was made. In Texas advancement of the crop was satisfactory in the northern half and coast sections, but rain in the south-west and extreme south caused further deterioration and, at the same time, favoured the increase of weevil activity. A little picking has been accomplished in the south Progress in Oklahoma was poor owing to the continued heat and dryness, and plants are mostly small and wilting badly, with some shedding In the central and eastern portions of the belt progress was generally fair to good, but in the eastern States stands were not so good, and in many places plants, were small In some areas of Georgia plants were too small and late to make even half a crop

(Report of 29 July)· Moderate warmth prevailed in most of the cotton belt except in the north-west, where temperatures where high and there was virtually no rain Elsewhere light to moderate showers weere experienced The week was generally favourable for the crop except in the hot and dry north-western portions of the belt. In Texas the crop made generally good progress and the condition was good, though intermittent rains in the central and southern portions favoured weevils In Oklahoma progress was mostly poor Though many south-eastern fields were good many others are badly burned, and some in the north-west are beyond recovery. In the central

States progress was generally satisfactory except in the drier sections of north-western Arkansas. In the eastern States growth was mostly good. While many stands of the early crop were poor the late crop, especially in North and South Carolina, was better.

(Report of 5 August): Temperatures in the cotton belt averaged near normal or slightly below in most sections of the belt. Rainfall was heavy in the eastern third, but little or no rain fell in the Mississippi Valley and the territory westward The weather was generally favourable except that some damage was done by heavy rains locally in the south-east and by continued dryness in the North-Western belt Texas experienced very favourable conditions throughout the week and the deterioration in the lower coast counties has apparently ended. There was rapid progress in picking in the southern portion of the State. In Oklahoma and in some of the western uplands of Arkansas conditions were unfavourable owing to continued dryness, crop progress being slow, plants being small, with some fruiting at the top In the territory from the Mississippi Valley eastward conditions were generally favourable, except for local damage by heavy rains in Georgia and Alabama

According to the August report, the unit yield is above the average in all States except Virginia, the Carolinas and Oklahoma which suffered most from the long drought. The prospects are best in the Mississippi States where record yields have been obtained. The irrigated cotton fields of New Mexico, Arizona and California also promise good yields Weevil damage is expected to be below average this year

Summary of Government's Cotton Reports, by cotton season

	Provisional estimates for dates indicated 1936/37	Final estimates		Percent. 1936/37	
		1935/36	Average 1930/31 to 1934/35	1935/36 = 100	Aver = 100
Report referred to 1 July					
Area in cultivation (acres)	30,621,000	27,888,000	37,408,000	109.8	81.9
Report referred to 1 August					
Area left for harvest (acres)	1) 29,924,000	2) 27,335,000	3) 34,658,000	109.5	86.3
Crop condition (per cent of normal)	72.3	73.6	4) 68.0	—	—
Production 5)	12,481,000	10,638,000	13,343,000	117.3	93.5
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 August 6)	41,130	94,346	85,520	43.6	48.1
Cotton ginned to 16 August 6)	208,327	316,930	345,824	65.7	60.2

1) Area in cultivation on 1 July, less the ten-year, 1926-35, average abandonment, about 2.3 per cent — 2) Area actually harvested; per cent of abandonment about 2 — 3) Area actually harvested, the per cent of abandonment, about 1.7, does not take into account about 10,355,000 acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts — 4) Ten-year, 1925-34, average. — 5) In bales of 478 lb. net weight and exclusive of linters — 6) In running bales, counting round bales as half-bales and exclusive of linters.

(Report of 12 August)· Temperatures were abnormally high in the western portion of the belt and moderate in the eastern portion There were frequent showers in the eastern parts, but the territory from the Mississippi Valley westward was virtually rainless. The droughty conditions in the north-western portion were showing increased damage, while there has been too much rain locally in the Eastern portion. Otherwise the weather was generally favourable In Texas crop progress was good, though rain was needed in the north, where the increasing dryness is causing premature opening and complaints of top fruiting. Picking is progressing. In Oklahoma progress ranged from deterioration to no growth with much wilting, shedding, and premature opening. Conditions in western Arkansas were poor, and in north-eastern Louisiana and in much of Mississippi they were less favourable, while in North Carolina plants were becoming sappy.

The revised acreage and yield estimates for the years 1924-25 to 1935-36 are reproduced below.

Years	Acreage Planted 1) Thousand acres	Acreage Harvested Thousand acres	Yield of lint per acre lb.
1924-25	40,690	39,501	165.0
1925-26	45,968	44,386	173.5
1926-27	45,839	44,608	192.9
1927-28	39,471	38,342	161.7
1928-29	43,737	42,434	163.3
1929-30	44,448	43,232	164.2
1930-31	43,329	42,444	157.1
1931-32	39,110	38,704	211.5
1932-33	36,494	35,891	173 5
1933-34	40,248	29,383	212.7
1934-35	27,860	26,866	171.6
1935-36	27,888	27,335	186.3

1) Beginning 1927-28, planted acreage estimates relate to acreage in cultivation on 1 July; prior to 1927-28, to acreage in cultivation on 25 June.

India: Based upon reports on the condition of the cotton crop at the end of July or early August the area sown is at present estimated by the Government, in their first all-India cotton forecast for 1936-37 at 15,769,000 acres, as compared with 15,271,000 acres (revised) at the same period of last year, and with a yearly average of 13,844,000 acres during the five-year period ending with 1934-35, percentages: 103.3 and 113 9

The first estimate for the Punjab places the cotton area at 3,305,000 acres. Compared with last year when there was an acreage at this period of 2,808,000, this year's figure is 17.7 % larger, while, compared with the average of the period 1930-31/1934-35 (2,229,000 acres) the increase is 48.3 %.

The area sown up to the end of July in Madras was estimated at 286,300 acres, of which 161,200 acres consists of last year's crop left on the ground. The corresponding figures for the last three years were 304,000, 198,000 and 176,000 acres respectively.

Algeria: The cotton area this year is 494 acres as compared with 49 in 1935 and *nil* in 1934 The average of the years 1930-1933 was 3,820 acres yielding 1,720 bales of ginned cotton. The 1926-30 average was 5,800 bales. The disappearance of the crop in 1934 and the present resumption are the outcome of the price situation.

Egypt (Report of 19 July)· Growth, branching and formation of bolls have greatly progressed during the period in question owing to the favourableness of the weather; adequacy of the irrigation water and the escape of the crop from damage by cotton leaf-worm. In the early cultivations of the southern Delta and in Middle Egypt, the bolls began to mature and a few commenced opening. As to Upper Egypt, the openning of bolls increased in the low branches. The state of the crop is satisfactory.

(Report of 6 August) The favourableness of the weather conditions and the high temperature helped the development of flowering and the formation and maturation of the bolls. Opening increased in the early-sown cultivations in the South of the Delta and Upper Egypt, where picking commenced in certain areas of the basin land.

The state of the crop is so far satisfactory.

The area of each cotton variety cultivated in 1936, in comparison with the corresponding figures of the four preceding years is as follows:

Varietes	1936	1935	1934 (Thousands acres)	1933	1932
Maarad	74	85	57	114	72
Sakha 4	43	28	10	48	—
Sakellaridis	168	309	436	406	383
Giza 7	423	280	297	129	36
Giza 12	6	—	—	—	—
Fuadi	20	33	41	51	18
Giza 3	9	11	10	7	7
Ashmuni & Zagôra	1,036	974	919	1,049	526
Other varieties	1	13	28	69	93
Total	*1,781*	*1,733*	*1,798*	*1,873*	*1,135*

The percentages of the areas of the different varieties of cotton from 1913 to 1936 are as follows:

PERIODS	VARIETIES									
	Mit 'Afifi, Yoannovitch, Nubâri, 'Abbâsi 1)	Sakellaridis	Ashmûni	Zagôra 2)	Fuâdi	Pilion 3)	Maarad 4)	Giza 7	Other varieties	Total area
	%	%	%	%	%	%	%	%	%	
1936	—	9.4	58.2		1.1	—	4.2	23.7	5) 3.4	100.0
1935	—	17.8	56.2		2.0	—	4.9	16.1	3.0	100.0
1934	—	24.2	51.1		3.3	—	3.1	16.6	2.7	100.0
1933	—	21.7	56.0		2.7	—	6.1	6.9	6.6	100.0
Average 1928 to 1932	—	38.9	44.8		—	5.9	1.3	—	9.1	100.0
» 1923 » 1927	0.8	57.6	36.0		—	3.4	—	—	2.2	100.0
» 1918 » 1922	4.3	73.5	17.2	3.8	—	—	—	—	1.2	100.0
» 1913 » 1917	36.5	42.6	20.6	—	—	—	—	—	0.3	100.0

Note: The varieties Ashmûni and Zagôra, known commonly as "Uppers" have a staple length from $1\,{}^{1}/_{16}$" to $1\,{}^{1}/_{8}$"; all other varieties have a staple length from $1\,{}^{1}/_{4}$" to $1\,{}^{1}/_{2}$", and some of them (Maarad, Giza 26, Sakha 4 and Sakha 11) reach even $1\,{}^{9}/_{16}$.

1) These varieties ceased to appear in the statistics in 1924. — 2) Appeared for the first time in 1920 with a per cent. of 4.6. — 3) Appeared in 1924 with a per cent. of 2.8 and disappeared in 1933. — 4) Appeared in 1932 with a per cent. of 6.4 — 5) Principally Sakha 4, Giza 12, Giza 3, Casulli and Nahda.

Anglo-Egyptian Sudan: According to the Final Progress Report for the cotton season 1935-36 a total crop of 201,000 bales of 478 lb. net weight has been picked on an area of 392,400 acres, compared with 227,500 bales and 364,600 acres in 1934-35, and a five-year average of 139,300 bales and 351,100 acres for the period ending with 1933-34; percentages: area, 107.6 and 111.8; production, 88.4 and 144.3. The production of 1935-36 is distributed in the following manner: Sakellaridis, 168,200 bales, including 142,500 bales produced in the Gezira; American irrigated 8,300 bales; American rain grown 24,600 bales, of which about 80 % grown in the Kordofan.

In the Gash zone all cotton stalks have been cut out and burnt, and preparations for the new season were almost complete. In the Gezira the whole of the cotton area has been cleared and cleaned; labour was scarce for present requirements. In the Kordofan, rains on the whole have been somewhat late, but sowing was making good progress; estimates based on seed issues are very satisfactory.

HEMP

Poland: According to the system in use in Poland, on July 15, 1936 crop condition was 3.3 as against 3.1 on June 15, 1936 and 3.4 on July 15, 1935.

Yugoslavia: Weather conditions during the month of July were generally speaking favourable to the growth of hemp.

HOPS

Belgium: The cold, damp weather in July was unfavourable to hops.

Great Britain and Northern Ireland: The area under hops in England and Wales is estimated at 18,300 acres and thus shows no change from that of last year or from the average of the preceding five years.

The extremely wet weather has been unfavourable to the crops. Although the bine is vigorous, it is not too healthy and there are indications of downy mildew. The yield is expected to be below average.

Czechoslovakia: The weather during July and the first ten days of August was rather wet and cool in the chief hop-growing districts. The conditions were, generally speaking, favourable to the crop, but the excessive humidity contributed in some regions to the spread of mildew. Nevertheless, an abundant crop is expected which should also be of good quality.

Yugoslavia: Weather conditions during the month of July were not very favourable to hops. Generally speaking, the appearance of the crop at the end of the month was good, the plant being well developed, but flowers rather scarce. It is anticipated that hop production this year will be below that of last year.

United States: According to the August estimate, the production of hops this year is about 22.2 million lb. against 47.7 million lb. in 1935 and 31 million lb. on the average of the five years ending 1934; percentages, 46.5 and 71.6.

TOBACCO

Belgium: The cold, damp weather in July was unfavourable to tobacco.

Bulgaria: During the month of July the condition of the tobacco crop was good. In some districts picking of the first leaves had been completed.

Greece: The rainy weather in June and July was very beneficial to the growth of the leaf of the tobacco plants. Up till the middle of July only isolated cases of disease had occurred and these of slight importance. In some districts slight damage had been caused by hail. At the present moment it is impossible to discuss prospects, but, generally speaking, it may be said that the crop condition is good both in Central and Western Macedonia.

Italy: According to information received from the *Banca Nazionale dell'Agricoltura* picking is considered satisfactory, though in some regions parasites have caused slight damage to the quality of the product.

Yugoslavia: The hot rainy weather during the first half of July was very favourable to growth; at that time an abundant crop was anticipated, larger than that harvested last year.

U. R. S. S.: The tobacco harvest in Crimea is expected to be abundant this year and it may perhaps be double that of last year. The work of picking and drying is not proceeding satisfactorily owing to a shortage of labour.

United States: According to the August estimate, the production of tobacco this year is about 1,107 million lb. against 1,297 million lb. in 1935 and 1,337 million lb. on the average of the five years ending 1934; percentages, 85.4 and 82.8.

Japan: According to the most recent estimate, the area under tobacco this year is about 87,700 acres against 86,500 in 1935 and 86,200 on the average of the five years ending 1934; percentages, 101.4 and 101.7. The corresponding production is estimated at about 143,590,000 lb. against 149,050,000 lb. and 146,040,000 lb.; percentages, 96.3 and 98.3

Palestine: The tobacco crop is generally poor; but an improvement has been noted in the tobacco growing districts of the North. The first tobacco leaves are now being picked.

Algeria: Tobacco is very uneven. Topping is progressing. Oidium has caused damage in some places. Part of the crop is expected to be of poor quality.

The area under tobacco this year is 54,000 acres compared with 57,000 acres last year and an average of 54,000 acres in the period 1930-34; percentages, 95.7 and 99.9.

OTHER PRODUCTS

Cacao.

Surinam: In the first quarter of 1936 there was no improvement in crop condition and other crops were continually taking the place of cacao.

Tea.

Japan: Owing to the favourable weather the condition of the crop is normal.

Coffee.

Brazil: According to the estimates of the National Coffee Department, the total quantity destroyed between 1931 and the 15 June 1936 was 48,345,000 centals.

Surinam: In the first quarter of 1936, condition of the trees was generally good and weather favourable. Flowering occurred in March after the beginning of the rains. There is a surplus of labour for picking. Disease damage was normal.

Groundnuts.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the groundnuts area:—

	1936 acres	1935 acres
Area harvested in June	61,300	63,000
Area harvested from 1 January 30 June	119,000	239,200
Area of standing crop at the end of June .	168,800	147,300

Egypt: The condition of the groundnuts crop is satisfactory. Flowering is general. Formation of pods has started in early cultivations. Hoeing and watering are in progress. The crop is satisfactory.

Colza and sesame.

Germany: The yield of rapeseed in the whole country, including the Saar, is about 1,568,000 centals (3,137,000 bushels).

Austria: Colza and rape gave satisfactory yields. The crop is estimated at 43,200 centals (86,400 bushels) against 34,600 centals (69,200 bushels) in 1935 and an average of 53,900 centals (107,800 bushels) in the period 1930-1934. Percentages, 124.8 and 80.2.

Belgium: The cold, rainy weather in July was unfavourable to colza.

Bulgaria: According to the most recent estimate, the area under rapeseed this year is about 6,900 acres against 54,900 in 1935 and 21,500 on the average of the five years ending 1934; percentages 12.5 and 32.1. The corresponding production is estimated at about 76,000 centals (152,100 bushels) against 482,000 (963,100) and 155,500 (311,000), percentages 15.8 and 48.9.

Netherlands: According to the most recent estimate, the production of rapeseed this year will be about 100,000 centals (200,000 bushels) against 70,400 (141,000) in 1935 and 90,900 (181,900) on the average of the five years ending 1934; percentages, 142.5 and 110.3.

Poland: On 15 July crop condition of winter colza was 3.7 as against 3.7 on 15 June, 1936 and 2.7 on 15 July, 1935; spring colza was 3.0, 3.0 and 2.9 respectively on the above dates, according to the system of crop estimation in use in Poland.

Japan: According to the most recent estimate, the area under rapeseed this year is about 260,800 acres against 243,800 in 1935 and 198,400 on the average of the five years ending 1934, percentages, 107.0 and 131.4. The corresponding production is estimated at about 2,519,600 centals (5,039,000 bushels) against 2,676,100 (5,352,000) and 1,950,700 (3,901,300); percentages 84.2 and 129.2.

Palestine: The sesame crop is poor in most localities.

Sericulture.

Bulgaria: According to the most recent estimate, the production of cocoons this year is about 3,086,000 lb. against 2,646,000 lb. in 1935 and 3,276,000 lb. on the average of the five years ending 1934; percentages, 116.7 and 94.2

Japan: Fruit-formation took place under normal conditions on the mulberry trees; silk-worm rearing was also normal.

According to the most recent estimate, the production of spring cocoons this year is about 32,655 millions lb. against 36,522 millions in 1935 and 41,927 millions on the average of the five years ending 1934; percentages, 89.4 and 77.9.

FODDER CROPS

Germany: The cool, damp weather experienced in July was favourable to the fodder crops.

The first cut of non-irrigated meadows yielded 423,814,000 centals (21,190,000 short tons) and that of irrigated fields 26,608,000 centals (1,330,000 short tons). The figures relate to the whole territory including the Saar.

Austria: Mangels are making vigorous growth although the fields are overrun by weeds. The clover aftermath is unusually plentiful. Owing to changeable weather cutting has been seriously hindered. Red clover is somewhat disappointing but the aftermath in alfalfa fields is very plentiful and a third cut is being obtained in several fields. The first cut yielded as follows: clover 11,900,000 centals (595,000 short tons), alfalfa 3,700,000 centals (187,000 short tons), clover mixtures 4,400,000 centals (220,000 short tons), hay from permanent meadows 52,900,000 centals (2,646,000 short tons).

Bulgaria: Weather conditions were favourable to meadows and pastures during July; a good aftermath is expected.

The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 August 1936			1 July 1936			1 August 1935		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
CLOVER:									
Germany	2.4	—	—	2.3	—	—	—	—	3.3
Austria 1)	1.9	—	—	1.8	—	—	—	—	3.3
Estonia	105	—	—	108	—	—	—	100	—
Netherlands:									
red clover	2) 67	—	—	2) 68	—	—	—	2) 64	—
white clover	2) 74	—	—	2) 73	—	—	—	2) 60	—
Poland	2) 3.2	—	—	2) 3.3	—	—	—	—	2) 2.9
ALFALFA:									
Germany	2.3	—	—	2.2	—	—	2.8	—	—
Austria	1.7	—	—	1.7	—	—	—	—	3.2
MANGELS:									
Germany	2.4	—	—	2.7	—	—	2.9	—	—
Austria	2.1	—	—	2.4	—	—	—	3.0	—
Denmark	—	—	2) 99	—	2) 100	—	—	—	2) 97
Netherlands	2) 74	—	—	—	—	—	2) 68	—	—
Switzerland	80	—	—	82	—	—	71	—	—
TEMPORARY MEADOWS:									
Austria 3)	1.6	—	—	1.6	—	—	—	—	3.1
Denmark	—	—	96	—	—	98	—	—	—
Norway	—	—	85	—	—	86	—	—	99
Switzerland	86	—	—	87	—	—	65	—	—
PERMANENT MEADOWS:									
Germany:									
irrigated meadows	2.2	—	—	2.2	—	—	2.8	—	—
other meadows	2.4	—	—	2.4	—	—	—	—	3.2
Austria	1.7	—	—	1.7	—	—	—	—	3.2
Denmark	—	—	89	—	—	94	—	—	—
Estonia	125	—	—	133	—	—	120	—	—
Norway	—	—	82	—	—	81	—	—	99
Netherlands 4)	2) 71	—	—	2) 68	—	—	2) 74	—	—
Poland:									
ordinary meadows	—	—	2) 2.6	—	—	2) 2.6	—	2) 3.0	—
low meadows	—	—	2) 2.8	—	—	2) 2.9	2) 3.2	—	—
meadows improved	2) 3.4	—	—	2) 3.5	—	—	2) 3.2	—	—
Switzerland	81	—	—	87	—	—	62	—	—
PASTURES:									
Germany	2.7	—	—	2.7	—	—	—	—	3.1
Austria	2.0	—	—	2.3	—	—	2.8	—	—
Denmark	—	—	91	—	—	78	—	—	83
Netherlands	2) 68	—	—	2) 68	—	—	2) 72	—	—
Poland:									
permanent pastures	—	—	2) 2.5	—	—	2) 2.6	—	—	2) 2.8
temporary pastures	—	—	2) 2.9	—	2) 3.0	—	—	—	2) 2.9
Switzerland	73	—	—	78	—	—	80	—	—

---

a) Above the average. — *b)* Average. — *c)* Below the average. — *d)* Excellent. — *e)* Good. — *f)* Average. — *g)* Bad. — †) See explanation of the various systems on page 533. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Kleegrass. — 4) Meadows for hay.

Estonia: Temperatures have been generally very favourable for the growth of grass, of though, in some places, lack of rainfall has been reported. Where the level of subsurface water is high, the hay fields are especially good. Hay-making which was done in good weather conditions is mostly finished and the quality of hay is very good.

Irish Free State: July was a very wet month and favoured growth. Root crops and grass did well.

Finland: According to the latest information, the production of hay from natural meadows in 1936 was 5,181,000 centals (259,000 short tons) against 6,173,000 centals (309,000 short tons) last year and an average of 7,503,000 centals (375,000 short tons) in the period 1930/1934; percentages, 83.9 and 69.1. The corresponding figures for fodder roots and tubers in general are 13,124,000 centals (656,000 short tons), 17,417,000 centals (871,000 short tons) and 14,952,000 centals (748,000 short tons); 75.4 and 87.8; and for fodder turnips 9,057,000 centals (453,000 short tons) 10,229,000 centals (511,000 short tons) and 11,518,000 centals (576,000 short tons); 88.5 and 78.6.

France: Owing to continued bad weather, hay, where saved, was in poor condition while much was lost.

Great Britain and Northern Ireland: The weather during July was exceptionally wet. Plant growth was promoted but the general effect of the weather was adverse. Haymaking was seriously hampered and is very backward. Little good hay has been made. Much has been damaged and some ruined for feeding purposes. All root crops are suffering from weeds owing to the wet conditions but they appear to be in average condition generally.

Hungary: All fodder crops are developing well; pastures, though dried up by the great heat are still able to provide sufficient bite for the livestock. Rain is hoped for.

Italy: The *Banca Nazionale dell'Agricoltura* reports that generally speaking fodder crops are growing well. The third cut on the meadows produced an abundant yield, but the quality was not always very good on account of bad weather during haymaking. Pasture has given good yields.

Latvia: According to 47.2 % of the crop reports, the crop condition of permanent meadows was average; 13.4 % of the reports indicated better than average condition while the remaining 39.4 % returned a lower than average condition. For temporary meadows the corresponding figures were 25.9 %, 66.9 % and 7.2 %; for annual clover 34.4 %, 50.0 % and 15.6 % for biennal clover 46.0 %, 23.9 % and 30.1 %. According to the forecasts, permanent meadows will yield 40,020,000 centals (2,001,000 short tons) against 41.479,000 centals (2,074,000 short tons) last year and an average of 39.200,000 centals (1,960,000 short tons); percentages, 96.5 and 102.1. The corresponding figures for clover are: 35,430,000 centals (1,771,000 short tons), 29,310,000 centals (1,465,000 short tons and 33,579,000 centals (1,679,000 short tons); 120. 9 % and 105.5 %.

Netherlands: Condition of red clover is good and that of white clow er better. Owing to the drought there are general complaints of inadequate grass growth, especially on higher lands. Cutting of grass took place generally under very favourable conditions and quality was good to very good, with satisfactory yields.

Poland: Owing to the insufficient humidity of the soil, the condition of the meadows and pastures was, generally speaking, worse towards the middle of July than in the corresponding period of last year.

While the condition of the grass on the ordinary and low meadows and on the permanent and temporary pastures was still unsatisfactory and below the average, that of the improved meadows and clover was good and above the average.

Sweden: Weather conditions were favourable to the hay crop and towards the middle of July cutting had commenced throughout the country.

Switzerland: Frequent rains have been favourable to the growth of fodder crops, but sunshine has been lacking for the cut. Quantity in many cases was satisfactory but the quality is not so good as fodder crops became too ripe, or the rains retarded haymaking. In the high regions, haymaking is not yet completed. In the plains and on the high plateaux a good aftermath is expected if the weather is good. The quality of the grass is beginning to suffer from too much precipitation.

This year it is estimated that the areas will be as follows: temporary meadows, 303,200 acres; permanent meadows, 1,933,600 acres, and pastures, 1,663,300 acres.

Yugoslavia: The hot, rainy and damp weather which prevailed until the end of July has been very favourable to fodder crops; grass is abundant everywhere.

U. S. S. R.: The hot and dry weather of July was not favourable for grass. 39.5 million acres (40 % of the area required by the Plan) of permanent meadows and 4.9 million acres of temporary meadows had by cut been the *kolkhoz* on 10 July. Hay from an area of 27.4 million acres had been gathered at the same date.

Argentina: In the middle of July the condition of cereal fodder crops was good, favoured by rains in the province of Buenos Aires. In the province of Côrdoba the condition of permanent meadows was very good, while in Entre Rios and the Pampas the condition of cereal fodder crops, pasture and alfalfa was very satisfactory. In the province of Santiago del Estero cereal fodder crops are in good condition, as also are the pastures in spite of drought. Alfalfa was favoured by the mild winter and has given good yields at the various mowings. At San Luis rye for fodder was well advanced ensuring a good reserve for the remainder of the winter. Permanent meadows, though damaged by the cold, had a good appearance.

(Telegram of 20 August): The condition of the pasture lands is good.

LIVESTOCK AND DERIVATIVES

Live stock in Belgium.

In the following table are given the numbers of livestock in Belgium on 31 December 1935 compared with the figures of preceding years and the prewar period:

YEAR	Horses 1)			Cattle				Pigs			
	under 3 years	over 3 years	Total	under 2 years	dairy cows	other cattle over 2 years	Total	under 6 months	over 6 months	of which store pigs (fattening)	Total
1935 . . .	91,112	140,294	231,406	763,064	970,225	104,205	1,837,494	712,139	572,326	428,261	1,284,465
1934 . . .	91,199	140,600	231,799	762,334	963,030	114,317	1,839,681	688,684	569,174	422,485	1,257,858
1933 . . .	91,442	141,847	233,289	760,609	946,515	105,483	1,812,607	729,168	623,358	461,345	1,352,526
1932 . . .	95,079	142,933	238,012	745,752	941,814	96,880	1,784,446	679,424	565,230	421,322	1,244,654
1931 . . .	96,663	145,326	241,989	738,740	930,930	97,866	1,767,536	672,902	562,312	420,114	1,235,214
1930 . . .	98,184	147,787	245,971	732,437	925,556	100,661	1,758,654	680,867	568,754	424,066	1,249,621
1929 . . .	99,564	149,450	249,014	727,208	911,720	99,420	1,738,348	675,374	561,628	421,252	1,237,002
1928 . . .	103,392	149,922	253,314	743,651	907,730	99,160	1,750,541	621,362	517,769	385,020	1,139,131
1927 . . .	101,978	154,847	256,465	735,462	901,902	101,450	1,738,814	609,824	514,419	381,347	1,124,243
1926 . . .	100,356	149,931	250,287	719,083	891,786	100,833	1,711,702	626,730	517,130	386,564	1,143,860
1913 . . .	95,472	171,688	267,160	779,950	936,800	132,734	1,849,484	746,674	665,619	—	1,412,293

1) Horses employed in agriculture.

Livestock in Czechoslovakia.

In the following table are given the final annual data for livestock.

Years	Horses	Cattle		Sheep	Goats	Pigs	
		Total	Cows			Total	Brood sows of 6 months and over
1936 (1-I)	695,003	4,283,071	2,437,214	547,050	1,000,221	2,744,745	425,062
1935 (1-I)	701,081	4,304,529	2,500,226	510,101	957,511	3,031,846	452,115
1934 (1-I)	700,658	4,404,796	2,516,905	475,881	929,631	3,429,919	557,621
1933 (1-I)	707,579	4,341,351	2,476,570	465,093	876,771	2,621,235	445,282
1931 (31-XII)	—	4,450,965	2,464,616	531,125	—	2,575,921	348,760
1930 (31-XII)	—	4,457,522	2,433,830	607,612	—	2,776,215	441,821

All kinds of livestock, except small stock, showed a reduction in 1935 not only in relation to 1934 but also in relation to the two preceding years, 1933 and 1932.

This decrease in livestock may be partly attributed to the deficient production of fodder cereals during 1935 and 1934. But it can also be seen that the fairly abundant fodder crops of 1935 were not sufficient to make up the deficit in the feeding of livestock.

There were of course other causes which influenced the decrease. The decrease in cattle, for instance, was due to the very dry summers experienced during the last two years, while the reduction in the number of horses was influenced by the recent growth in mechanisation.

Small live stock, on the other hand, are continually on the increase, due principally to the protective measures employed to encourage national wool production the imports of wool in recent years having increased considerably.

The following table shows the numbers of pigs in the various categories on 1 July 1936 (final data) and at the same date in each of the four preceding years (provisional data).

Years	Total pigs	CATEGORIES					
		Boars for reproduction	Sows for reproduction (excluding those for fattening)		Other pigs used for reproduction (including sows for fattening)		
			6 months old and under 1 year	1 year old and over	young pigs less than 8 weeks old	Pigs 8 weeks old and under 6 months	Pigs 6 months old and over
1936 (1 July)	3,163,404	12,357	159,746	313,268	761,436	1,549,530	364,067
1935 »	2,980,193	12,110	157,758	259,664	700,959	1,453,203	356,479
1934 »	3,887,837	13,909	154,686	397,509	1,011,757	1,850,138	459,838
1933 »	3,314,123	13,949	183,700	339,581	845,625	1,574,623	356,645
1932 »	3,082,456	12,687	149,885	311,099	770,354	1,431,531	406,900

During the first six months of 1936 the condition of the pig population was more satisfactory; a rise in total numbers is observed, but they are far from reaching the quantitative record attained in 1934.

It is interesting to show here the official data on the trend of production and consumption of meat and fats during the first months of 1936.

Production and consumption of meat and fats during the period January-May 1936

	Number of animals slaughtered throughout the country January-Mary 1936	1935
Beef	277,490	300,900
Veal	386,739	435,293
Pigs	1,746,942	1,937,803
Sheep	32,172	24,478
Lambs	53,985	61,243
Goats	19,414	18,987
Kids	393,234	374,217
Horses and mules	14,211	12,103
Foals and donkeys	854	653

Quantities of meat and fats obtained from slaughtered animals.

	Home production		Imports	
	1936	1935 in thousands of lb.	1936	1935
Beef	146,378	150,853	185	151
Beef fat	10,173	10,204	10	8
Pork	172,572	193,763	17,593	9,150
Lard and bacon	46,670	51,679	14,255	7,717
Other meats	45,181	48,253	365	201
Other fats	193	173	34	19
Total meat	*364,131*	*392,869*	*18,143*	*9,502*
Total fats	*57,036*	*62,056*	*14,299*	*7,744*

Total and per head consumption of meat and fats.

	January May 1936 000 lb	Per head lb	January May 1935 000 lb	Per head lb.
Beef	146,612	9 66	150,987	10.01
Beef fat	10,477	0 71	10,906	0.75
Pork	190,156	12 57	202,637	13.43
Lard and bacon	72,902	4.83	61,718	4.08
Other meats	46,012	3 00	48,413	3.20
Other fats	228	0 00	191	0.00
Total meat	*382,780*	*25.23*	*402,037*	*26.64*
Total fats	*83,607*	*5.54*	*72,815*	*4.83*

The total consumption of meat during the period January-May, 1936, was 19,697,000 lb. less than that of the same period in 1935.

On the other hand, the total consumption of fats during the corresponding period increased by 10,791,000 lb.

The average meat consumption per head declined by 1.41 lb. whereas fat consumption increased by 0.71 lb. per head.

The decline in meat consumption was due to decreased home production as supplies were not sufficient even in spite of a considerable increase in importation of meat from abroad in comparison with the corresponding period of 1935.

In the case of fats, on the other hand, the decline in home production was compensated by an adequate importation from abroad.

G. SEVERIN.

WORLD TRADE IN EGGS IN THE SHELL

I. — THE NEW TENDENCIES OF PLANNED ECONOMY AND THE EGG TRADE

Under present world economic conditions importing countries attempt to diminish their imports as far as possible and to entrust to national agriculture the task of increasing production in order to satisfy national requirements; exporting countries, on the other hand, attempt to protect their farmers by procuring an outlet for their agricultural produce on the markets from which they import other goods; eggs, like other products (such as butter, milk and meat) of high nutritive value and of relatively high price, were one of the first trade products to which those directing national economy in the different countries turned their attention. Many arguments have been brought forward in favour of the limitation and, if possible, the prohibition of the importation of eggs from abroad. Among these, one of the most important is that of the protection of the health of the consumer. In fact, the greater freshness of the national product is a further guarantee of its quality, but, chiefly during the last few years, the most important consideration in the framing of commercial policy has been the enormous amount of money expended abroad for the purchase of eggs. For instance (to quote only the example of the largest importing country in the world), during 1935 the United Kingdom imported eggs to a total value of 117,600,000 gold francs (£ 7,777,000) and in 1930 this total reached 413 million gold francs (£ 16,378,000).

In view of the complexity of the factors connected with egg production and trade, an adequate solution taking account of all the difficulties involved in the problem of the limitation or prohibition of egg imports is not easily found. The difficulties are increased because Governments now maintain that a more rational nutrition is a fundamental necessity in the economic life of their countries. This implies, among other things, an increased egg consumption. National agriculture in the imporring countries must therefore produce more; not only to replace imports, but also to meet the increased consumption resulting from the changed standard of living and from the natural increase in population.

On the other hand, the increase in production must not bring with it a rise in price which would prevent increased consumption and also have an effect on levels of wages. In the practical realisation of such a solution, other problems arise. How can egg production be increased ? Should large " egg factories " be created or should the poultry production of the small farmer be increased ? How can an increase of poultry production be reconciled with the customs dues imposed on imported poultry feed ? As we stated last year (1), the process of adaptation to the new methods appears to be taking a long time and the results cannot yet be seen.

Exporting countries, on the other hand, are making every effort to reorganise their poultry rearing and to improve the technique of egg production and transport in order to meet the requirements of importing countries as regards quality of produce. Particular mention should be made of the strict measures adopted for 1935 by Bulgaria and Turkey in the grading of eggs for trade purposes.

The exporting countries, in order to protect their poultry industry, try to secure quotas from importing countries or to enter into agreements of some sort with them. The principle of *do ut des* seems to be establishing itself ever more firmly as regards eggs, so that allocations of quotas of this commodity are determined by the sums accumulated by the importing country as a result of its own sales in the exporting country.

The experience of the last few years indicates that the most important factor in the problem of increasing egg production (and poultry products) is still that prices of feed should be sufficiently low to leave the poultry producer a not too narrow margin of profit.

The antagonism between the egg importing countries striving after self-sufficiency in food products and the exporting countries with supplies of cheap poultry feeds will be of advantage to both; generally speaking, each of these two groups of countries will be induced to determine the weak points in their respective poultry industries and to discover the best methods for this branch of production.

II. — WORLD EXPORTS.

As will be seen from Table I, the total exports of the 17 chief exporting countries of the world have diminished uninterruptedly from 1,026 million pounds in 1930 to 600 million pounds in 1935. Exports in 1935 were 33 % below the average for the period 1930-33 and 6 % below those of the year 1934, so that during the last year the rate of decline has slackened.

Of the 17 countries under consideration only Denmark and French Morocco were able to increase their shipments abroad during 1935. The exports of these two countries in 1935 were larger than those of 1934 and also above the average of the previous four years.

---

(1) " World Trade in Eggs in the Shell ", *Monthly Crop Report and Agricultural Statistics*; May 1935, pages 375-384.

Exports from Poland and France were larger than those of 1934, but appreciably lower than the average. The remaining 13 countries recorded lower exports both in relation to the 1934 figure and to the average.

I. — *World trade in eggs in the shell — Exports.*

(thousand lb.)

Countries	1935	1934	Average 1930/33	1933	1932	1931	1930	% 1935	
								1934 = 100	Average = 100
Bulgaria	28,164	32,042	41,919	34,547	41,456	49,314	42,359	87.9	67.2
Denmark 1)	161,524	155,091	138,189	147,480	152,218	134,251	118,806	104.1	116.9
Irish Free State 1)	50,511	57,343	69,023	57,366	64,205	76,220	78,301	88.1	73.2
France	2,760	2,499	15,862	821	2,306	15,104	45,217	110.4	17.4
Hungary	18,201	20,957	23,739	25,388	14,103	26,414	29,051	86.8	76.7
Italy	2) 568	1,572	12,773	2,197	8,539	19,807	20,551	...	...
Netherlands	136,252	141,765	169,861	125,611	176,503	190,037	187,291	96.1	80.2
Poland	50.602	46,802	90,453	51,821	82,458	106,033	121,500	108.1	55.9
Romania	15,213	16,221	29,611	17,996	34,849	28,512	37,088	93.8	51.4
Belgo - Luxemburg - Customs Union .	24,148	31,121	68,514	44,111	82,413	78,090	69,441	77.6	35.2
U. S. S. R.	18	2,657	21,735	4,343	15,831	45,058	21,707	0 7	0,1
Yugoslavia	24,546	26,291	50,437	40,310	36,356	57,997	67,085	93.4	48.7
United States 1) . .	2,996	3,187	12,586	3,086	3,835	12,705	30,720	94.0	23.8
China 1)	41,170	44,030	66,766	48,869	49,037	84,234	84,922	23.5	61.7
Turkey	13,417	23.011	46,849	39,488	54,572	53,940	39,397	58.3	28,6
Egypt	6,442	13,061	17,407	19,497	24,378	14,606	11,146	49.3	37.0
French Morocco .	22,995	21,370	20,535	21,849	19,712	18,785	21,794	107.6	112.0
Total . . .	**2) 599,527**	**639,020**	**896,259**	**684,780**	**862,771**	**1,011,107**	**1,026,376**	**93.8**	**66.9**

1) The original figures, expressed in number of eggs, have been converted to pounds on the basis of the coefficient: 7,260 eggs = 1,000 lbs. — 2) For Italy the first nine months only.

During the last three years under examination, the first place has been held by Denmark, which since 1930 has been able to increase her exports almost without interruption. This development, in contrast to the general tendency, is due to the quality of the product, the proximity of Denmark to the greatest importing countries in the world (the United Kingdom and Germany) and the perfection of her methods of transport. In Table II, besides Denmark's traditional customers, namely the United Kingdom, Germany and Sweden, are shown five other countries illustrating the way in which Denmark has been able to conquer a fairly important position even in more remote countries. For instance, though in 1930 Denmark exported no eggs to Switzerland, in 1934 she sent more than 10 million pounds, or 6.5 % of the total exports for that year. From the Swiss statistics for 1935, a new and considerable increase in the Danish contribution to egg imports to Switzerland is noticeable, Denmark in 1935 occupying the first place in the imports of this country and coming before Bulgaria and Yugoslavia who occupy the second and third positions respectively. The Swiss statistics also show that the average value per quintal of Danish eggs was only 89 Swiss francs in 1935 as against 101 francs per quintal as the average of eggs from all countries, which explains in part the good position which Denmark has obtained on the Swiss market.

In order to ensure the continuation of shipments to Switzerland, towards the end of 1930 Denmark entered into a compensation agreement with this country on the basis of which Denmark may export to Switzerland a considerable quantity of eggs and poultry. Denmark has also obtained a good footing in Spain to which country in 1934 she shipped quantities amounting to 3.4 % of her total exports. Nevertheless, the United Kingdom and Germany remain the principal markets for Danish produce.

II. — *Exports of eggs in the shell from Denmark, by destination.*

(thousand lb.)

Destination	1935		1934		Average 1930-33	
	Absolute data	%	Absolute data	%	Absolute data	%
United Kingdom	106,657	66.0	103,645	66.8	105,840	76.6
Germany	35,754	22.1	34,728	22.4	28,756	20.8
Sweden	0	0.0	9	0.0	594	0.4
Switzerland	19,113	11.9	10,108	6.5	1) 2,072	2.0
Spain			5,305	3.4	2) 3,122	
Belgo-Luxemburg Customs Union			679	0.4	2) 758	
Czechoslovakia			311	0.2	1) 295	
France			75	0.1	1) 31	
Other countries			231	0.2	231	0.2
Total	**161,524**	**100.0**	**155,091**	**100.0**	3) **138,189**	**100.0**

Destination	1933		1932		1931		1930	
	Absolute data	%	Absolute data		Absolute data		Absolute data	%
United Kingdom	103,295	70.0	104,548	68.7	114,231	85.1	101 288	85.2
Germany	33,877	23.0	46,109	30.3	17,975	13.4	17,065	14.4
Sweden	94	0.1	260	0.2	1,776	1.3	241	0.2
Switzerland	5,423	3.7	782	0.5	10	0.0	—	—
Spain	3,122	2.1	—	—	—	—	—	—
Belgo-Luxemburg Customs Union	758	0.5	—	—	—	—	—	—
Czechoslovakia	555	0.4	329	0.2	1	0.0	—	—
France	80	0.0	12	0.0	2	0.0	—	—
Other countries	276	0.2	178	0.1	256	0.2	212	0.2
Total	**147,480**	**100.0**	**152,218**	**100.0**	**134,251**	**100.0**	**118,806**	**100.0**

1) Average 1931-33. — 2) Year 1933. — 3) Average of the totals.

The relative importance of these two countries in Danish exports has fluctuated during the six years from 1930 to 1935 as follows: 99.6 %, 98.5 %, 99.0 %, 93.0 %, 89.2 % and 88.1 %, with a tendency to a decline as regards the United Kingdom and an increase in the case of Germany. The fact that in 1930 the countries other than the United Kingdom and Germany took only 0.4 % of the Danish exports, while in 1935 they took 11.9 % of an increased total, is an exact indication of the alterations which have taken place in the distribution of Danish exports.

The second place among exporting countries is occupied after 1933 by the Netherlands, which, during the period 1930-32 was at the top of the list. The great reduction in Dutch exports is due in 1933 to a simultaneous reduction of shipments to the two principal buyers, namely, Germany and the United Kingdom. From this year date the first " crisis measures ", which were to reform and consolidate Dutch poultry farming. The result of these Government measures is seen in the increase in exports for 1934, although this increase was not maintained in 1935 at the level attained in the preceding year. The very marked reduction in exports to Germany is the most noticeable feature. The quantity of Dutch eggs absorbed by this country alone in 1932 was about 10.4 million pounds more than the entire amount of eggs exported from Holland in 1935.

The relative importance of the quantities shipped to the two chief purchasers of Dutch eggs (Germany and the United Kingdom) fluctuated from 1930 to 1935 as follows: 95.3 %, 96.0 %, 97.2 %, 92.1 %, 89.5 %, 87.7 %.

III. *Exports of eggs in the shell from the Netherlands, by destination.*

(thousand lb.)

Destination	1935		1934		Average 1930-33	
	Absolute data	%	Absolute data	%	Absolute data	%
Germany	70,923	52.0	108,676	76.7	122,567	72.2
United Kingdom	48,608	35.7	18,177	12.8	39,456	23.2
Belgo-Luxemburg Customs Union	5,185	3.8	2,349	1.7	2,190	1.3
Spain	7,846	5.8	10,831	7.6	1,070	0.6
Switzerland	1,254	0.9	606	0.4	966	0.6
France	397	0.3	336	0.2	471	0.3
Czechoslovakia	137	0.1	88	0.1	164	0.1
Other countries	1,901	1.4	700	0.5	2,976	1.7
Total	**136,251**	**100.0**	**141,763**	**100.0**	**169,860**	**100.0**

Destination	1933		1932		1931		1930	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
Germany	96,445	76.8	146,619	83.1	125,446	66.0	121,759	65.0
United Kingdom	19,243	15.3	24,932	14.1	56,999	30.0	56,649	30.3
Belgo-Luxemburg Customs Union	4,214	3.4	1,385	0.8	1,379	0.7	1,781	1.0
Spain	3,799	3.0	339	0.2	88	0.1	54	0.0
Switzerland	1,067	0.8	1,408	0.8	1,176	0.6	214	0.1
France	324	0.3	240	0.1	1,288	0.7	32	0.0
Czechoslovakia	109	0.1	535	0.3	13	0.0	—	—
Other countries	410	0.3	1,045	0.6	3,648	1.9	6,802	3.6
Total	**125,611**	**100.0**	**176,503**	**100.0**	**190,037**	**100.0**	**187,291**	**100.0**

In 1935, the proportion of shipments to Germany reached the lowest level during the period under consideration (52.0 %), while those to the United Kingdom touched a maximum (35.7 %). Shipments to the United Kingdom would have been even greater, if a " gentleman's agreement " had not been requested and obtained by the United Kingdom towards the middle of 1935. Shipments to Spain, amounting to 7.8 million pounds remained at a fairly high level, especially if it is recalled that during the period 1930-1932, exports to this destination were low.

Taking an average for the years 1925-1929, the value of eggs in the shell exported from the Netherlands amounted to 118 millions of gold francs (56,528,000 florins); for the period 1930-34 the average fell to 81 million gold francs (38,912,000 florins) and in 1935 it was 45,670,000 gold francs.

The Government took very strict measures in order to give a sounder basis to the production and introduced a complicated control over egg production and trade. The possibility of again increasing exports to Germany depends upon the volume of purchases made by the Netherlands in Germany. The situation of the Dutch poultry industry is rendered still more serious on account of the fact that the country is obliged to import large quantities of poultry feed from abroad under a regime of protection for cereal cultivation, and this increases the cost of production of eggs and at the same time reduces the competitive capacity of Dutch eggs on the world market.

IV. — *Trade in eggs in the shell 1926-35: Italy and France.*

(million lb)

	Italy		France	
Years	Imports	Export	Imports	Exports 1)
1935	2) 10	2) 1	24	3
1934	18	2	26	2
1933	19	2	35	1
1932	77	9	28	2
1931	54	20	68	15
Average 1926-1930	*35*	*29*	*24*	*51*
1930	50	21	32	45
1929	36	23	32	57
1928	39	26	22	90
1927	34	31	18	30
1926	15	47	14	33

1) Including unsugared yolk for food purposes. — 2) First nine months only.

Among the other European countries, France and Italy are simultaneously exporters and importers of eggs with a tendency to show from year to year considerable surpluses of imports over exports. French exports reached their maximum in 1930 (considerable quantities were shipped to Spain and the United Kingdom), a year during which 45 million pounds of eggs were shipped. From that year exports declined until 1933, when a slight improvement was registered. Imports have a corresponding opposite tendency so that today France imports more eggs than she exports. The Italian egg trade presents a similar picture with the difference that during the last three years under review not only exports but also imports have diminished. Italy is taking on more and more the character of an importer country.

Among the countries of Eastern and South-eastern Europe, Hungary and Bulgaria have held out best against the reduction in exports during the period under review. In 1935 their exports still represented 76.7 % and 67.2 % respectively of the four-year average of 1930-33, while exports from Poland, Romania and Yugoslavia represented only 55.9 %, 51.4 % and 48.7 % respectively. On the other hand, in relation to the 1934 figures,Poland showed an. increase and Romania and Yugoslavia showed smaller reductions than those of Hungary and Bulgaria. In 1935 the U. S. S. R. practically prohibited exports of eggs; during that year egg imports, principally from Finland, exceeded exports. Egg exports from the U. S. S. R. commenced to decline rapidly after 1931, falling from 45 million pounds in 1931 to 15.8, 4.3 and 2.7 million pounds in the suceeding years and being reduced in 1935 to 17,600 pounds. To meet the requirements of the home market, the U. S. S. R. government has definitely prohibited exports of eggs and other food products.

After the elimination of such an important exporting country as the U.S.S.R., in 1935 the group of 6 countries in Eastern and South eastern Europe saw their share of world exports reduced by almost half the average amount supplied during the period 1930-33. The reduction in relation to 1934 was only 5.7 since during that year the U. S. S. R. exported only a minimum quantity of eggs.

Of the two important exporting countries of Western Europe (excluding Denmark and the Netherlands), the Irish Free State and the Belgo-Luxembourg Customs Union, the former was better able to hold out. The decline in the exports of Belgium which took place not only in relation to 1934 but also in relation to the four-year average, denotes a serious crisis in the poultry industry of this country which after the war was able to increase its poultry stock to such an extent as to be able to become a great exporter.

V. — *Exports of eggs in the shell from the principal European exporting countries.*

(thousand lb)

GROUPS OF COUNTRIES	1935	1934	Average 1930/33	1933	1932	1931	1930	% 1935	
								1934 = 100	Average = 100
1st Group 1)									
Eastern and South eastern European countries (6 countries)	136,742	144,969	257,894	174,404	225,053	313,329	318,789	94.3	53.0
2nd Group 2)									
Western European countries (4 countries)	372,435	385,321	445,587	374,570	475,338	478,598	453,840	96.7	83.6
Total (10 countries)	*509,177*	*530,290*	*703,481*	*548,974*	*700,391*	*791,927*	*772,629*	*96.0*	*72.4*

1) Bulgaria, Hungary, Poland, Romania, Yugoslavia, and U. S. S. R. — 2) Belgo-Luxemburg Customs Union, Denmark, Irish Free State and the Netherlands

The group of exporting countries in Western Europe, thanks to the extraordinary development of Danish exportation, shows a reduction of only 16.4 % in relation to the average and of 3.3 % in relation to 1934, while for the 10 countries considered in Table I (with the exception of France and Italy) and in Table V, the reduction was respectively 27.6 % and 4 %.

III. — WORLD IMPORTS.

The measure of shrinkage observed is naturally also to be found in imports. In 1935 the total for the group of 8 principal importing countries, all European, shows a reduction of 3.7 % from 1934 and of nearly 30 % from the average, and the average. All save one these countries imported smaller quantities than those of the period 1930-33 and all but two also imported less than in 1934. The imports of the United Kingdom and Czechoslovakia, compared with 1934 were larger but, compared with the average, they were smaller by about 15 %. In 1935 Spain, on the other hand, shows imports exceeding the average by 21 % but they are smaller those of 1934 by about 3 %

The greatest relative reduction took place in Austria and Germany where imports in 1935 represented respectively only 32 9 % and 48 7 % of the average.

The United Kingdom continues to occupy the first place among importers with quantities fluctuating between 303 8 million pounds in 1933 and 438 9 million pounds in 1930.

VI. — *World trade in eggs in the shell — Imports.*

(thousand lb)

Countries	1935	1934	Average 1930 33	1933	1932	1931	1930	% 1935	
								1934 = 100	Average = 100
Germany	142 527	167,480	292,411	184,933	315,937	315,554	353,221	85 1	48 7
Austria	10 064	14,725	30,550	19,772	25,196	38,428	38,804	68 3	32 9
Spain	73,694	76,138	60,919	83,561	51,328	50,056	58,731	96 8	121 0
France	23,513	26,469	40,576	34,694	28,384	67,643	31,582	88 8	57.9
United Kingdom 1)	327,036	309,765	375,478	303,787	330,606	428,666	438,852	105 6	87 1
Italy .	2) 10,013	18,191	50 284	19,363	77,138	54,320	50,315		.
Switzerland	30,837	32,952	33,747	33,024	37,128	34,506	30,332	93 6	91 4
Czechoslovakia	13,311	9,712	15,309	11,462	19,667	18,204	11,904	137 1	86 9
Total	2) **630,995**	**655,432**	**899,274**	**690,596**	**885,384**	**1,007,377**	**1,013,741**	**96 3**	**70.2**

1) The original figures, expressed in number of eggs, have been converted to pounds on the basis of the coefficient 7,260 eggs = 1,000 lb — 2) For Italy the first 9 months only

Important changes have occurred in the composition of the United Kingdom's imports; in particular, the proportion of the total imports of the United Kingdom supplied by British countries in 1935 was smaller both in relation to 1934 and to the average. This proportion was highest in 1933 when imports from the Dominions, the British colonies, etc., represented 32 7 % of the total imports of the United Kingdom; in 1935 it fell to 24.4% as against 31.0 % in 1934.

This is explained by the severe competition which arose between the exporting countries after the shrinkage of the egg trade. The biggest market in the world is always the scene of the severest competition. Many poultry breeders in the United Kingdom believe that imports from abroad should be limited in order to give a greater impulse to the national industry. The solution of the problem does not appear to be easy in view of the existing trade agreements.

In 1935 the first place among the suppliers of the United Kingdom was again occupied by Denmark, with 33.2 % of the total imports, followed by the Netherlands with 13.5 % and the Irish Free State with 12.1 %. Mention should be made of the reduction of this last country's share, which during the period of 1930-33 amounted to 18.4 % of total British imports.

As regards the other countries, the increase in imports from Australia (5 4 % on the average and 9 7 % on 1935) and Poland's steady contribution of 10 % should be emphasized

In the severe competition between all countries during the years 1934 and 1935, France, the U. S. S. R and Egypt have been almost completely eliminated from the market of the United Kingdom; on an average, during the period 1930-1933, these countries had contributed 2.5 % of the British imports.

The second importing country in the world, Germany, continued to restrict her purchases abroad during the period under consideration. In addition to the reduction in imports, energetic measures have been taken, particularly during the last two years under review, with the object of encouraging the national poultry industry. In fact, the aims of the German poultry industry form an integral part of the plans for the general development of production. The object, as far as the poultry industry is concerned, is to attain the highest possible degree of independence of foreign markets. The general lines of the method employed are: (1) not to increase numbers, but to improve the breeds in order to increase yields; (2) to direct the poultry industry in such a way as to concentrate it in the hands of the small farmers who must not import from abroad too great quantities of cereals and feed for their birds; (3) to ensure to the producer a reasonable profit which will at the same time not weigh too heavily on the consumer.

As an importer, Germany follows the principle of buying only from those who make purchases from her, and of avoiding as far as possible the accumulation of excessive quantities during the period of abundance or " egg floods ", so that the price of the national product may not fall below a minimum fixed in advance.

During the 6 years under review, imports of eggs into Germany fell from 356.2 million pounds in 1930, to 315.6, 184.9, 167.5 and 142 5 million pounds in the succeeding years.

The most important source of supply is the Netherlands which supplied 32.9 % of the total German imports for 1935, as against 44.3 % in 1934 and 33.4 % on an average during the period 1930-1933. In 1935, Dutch exports to Germany did not reach the figures of the previous year, either absolutely or relatively, because Germany regulated her egg purchases in the Netherlands according to the quantity of other products bought in Germany by the Netherlands.

The volume of German imports from Denmark has been increasing steadily; their proportion in relation to total Germain imports rose from 4.8 % in 1930 to 19.5 % in 1934 and to 22.8 % in 1935. It should be emphasized that Bulgaria has been taking an ever stronger hold on the German market, occupying in 1935 the third place among the countries supplying Germany. Romania, which during the first part of the period under review was one of the principal suppliers, has lost

VII. — *Imports of eggs in the shell into the United Kingdom, by origin.*

(thousand lb.)

Origin	1935		1934		Average 1930-33	
	Absolute data	%	Absolute data	%	Absolute data	%
Irish Free State	39,606	12.1	52,819	17.1	69,204	18.4
Union of South Africa and South-West Africa Territory	1) 5,967	1.8	1) 4,965	1.6	8,421	2.2
Australia	31,767	9.7	34,706	11.2	20,205	5.4
Other British Coutries	2,398	0.8	3,469	1.1	1,399	0.4
Total from British Countries	*79,738*	*24.4*	*95,959*	*31.0*	*99,229*	*26.4*
Denmark	108,536	33.2	105,545	34.1	111,908	29.6
Poland (and Danzig)	33,316	10.2	32,108	10.4	40,737	10.9
China	20,273	6.2	23,397	7.5	22,555	6.0
Netherlands	44,296	13.5	15,611	5.0	41,030	10.9
Belgo-Luxemburg Customs Union	4,210	1.3	811	0.3	26,620	7.1
Sweden	4,507	1.4	4,263	1.4	5,764	1.5
Finland	10,607	3.2	14,707	4.7	3,574	1.0
Other Foreign Countries	21,553	6.6	17,366	5.6	24,761	6.6
Total from Foreign Countries	*247,298*	*75.6*	*213,808*	*69.0*	*276,249*	*73.6*
General Total	**327,036**	**100.0**	**309,767**	**100.0**	**375,478**	**100.0**
including:						
France	...	...	...	...	(3,201)	(0.9)
U. S. S. R.	...	...	...	...	(2,025)	(0.5)
Egypt	...	...	..	...	(4,213)	(1.1)

1) Union of South Africa only

Origin	1933		1932		1931		1930	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
Irish Free State	56,830	18.7	65,284	19.8	75,648	17.7	79,054	18.0
Union of South Africa and South-West Africa Territory	7,520	2.5	8,698	2.6	9,737	2.3	7,729	1.8
Australia	31,406	10.3	25,059	7.6	15,182	3.5	9,171	2.1
Other British countries	3,652	1.2	419	0.1	975	0.2	550	0.1
Total from British Countries	*99,408*	*32.7*	*99,460*	*30.1*	*101,542*	*23.7*	*96,504*	*22.0*
Denmark	103,071	33.9	105,695	32.0	124,815	29.1	111,252	25.3
Poland (and Danzig)	27,793	9.2	30,991	9.4	44,430	10.4	59,733	13.6
China	23,093	7.6	14,055	4.3	24,756	5.8	28,317	6.4
Netherlands	16,582	5.5	23,198	7.0	63,481	14.8	60,859	13.9
Belgo-Luxemburg Customs Union	7,432	2.4	26,187	7.9	34,275	8.0	38,586	8.8
Sweden	3,340	1.1	5,989	1.8	5,605	1.3	8,121	1.9
Finland	7,907	2.6	5,208	1.5	986	0.2	195	0.0
Other Foreign Countries	15.159	5.0	19,823	6.0	28,776	6.7	35,285	8.1
Total from Foreign Countries	*204,377*	*67.3*	*231,146*	*69.9*	*327,124*	*76.3*	*342,348*	*78.0*
General Total	**303,785**	**100.0**	**330,606**	**100.0**	**428,666**	**100.0**	**438,852**	**100.0**
including:								
France	(4)	(0.0)	(308)	(0.1)	(1,599)	(0.4)	(10,892)	(2.5)
U. S. S. R.	(915)	(0.3)	(1,441)	(0.4)	(4,339)	(1.0)	(1,403)	(0.3)
Egypt	(1,665)	(0.5)	(4,068)	(1.2)	(3,653)	(0.9)	(7,465)	(1.7)

much ground, mainly on account of the interruption, during a certain period, of the trade between the two countries on account of difficulties arising in their trade relations. The fact should also be emphasized that in 1935 the U. S. S. R. and Poland were practically absent from the German market, though during the period 1930-1934 they still contributed an average respectively of 5.9 % and 4 % of German imports. In 1935 China also did not appear on the market. Turkey, which in 1934 had increased her sales to Germany, in 1935 succeeded in increasing them further and also in improving her relative importance on the

VIII. — *Imports of eggs in the shell into Germany, by origin.*

(thousand lb.)

Origin	1935		1934		Average 1930-33	
	Absolute data	%	Absolute data	%	Absolute data	%
Netherlands	46,927	32.9	74,134	44.3	97,737	33.4
Denmark	32,529	22.8	32,696	19.5	27,583	9.4
Romania	4,105	2.9	10,008	6.0	28,446	9.7
Bulgaria	19,844	13.9	16,436	9.8	29,762	10.2
Finland	5,636	4.0	6,391	3.8	5,055	1.7
Yugoslavia	6,998	4.9	4,952	2.9	13,348	4.6
Belgo-Luxemburg Customs Union	6,183	4.3	8,071	4.8	21,328	7.3
Poland	45	0.0	804	0.5	11,685	4.0
Hungary	4,635	3.3	4,675	2.8	8,987	3.1
Sweden	2,619	1.8	2,443	1.5	3,520	1.2
U. S. S. R	439	0.3	118	0.1	17,249	5.9
Lithuania	6	0.0	211	0.1	4,511	1.6
Turkey	3,563	2.5	2,486	1.5	1,236	0.4
Other countries	8,998	6.4	4,055	2.4	21,964	7.5
Total . . .	**142,527**	**100.0**	**167,480**	**100.0**	**292,411**	**100.0**
including:						
China	—	—	116	0.1	5,815	2.0
Irish Free State	4,997	3.5	52	0.0	—	—

Origin	1933		1932		1931		1930	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
Netherlands	68,721	37.2	119,611	37.8	101,473	32.1	101,142	28.6
Denmark	30,946	16.7	43,648	13.8	18,932	6.0	16,806	4.8
Romania	13,620	7.4	33,538	10.6	29,060	9.2	37,568	10.6
Bulgaria	12,007	6.5	25,354	8.0	42,145	13.3	39,543	11.2
Finland	10,852	5.9	7,819	2.5	1,480	0.5	69	0.0
Yugoslavia	9,495	5.2	6,878	2.2	15,627	5.0	21,390	6.1
Belgo-Luxemburg Customs Union	9,067	4.9	34,734	11.0	15,158	4.8	26,353	7.5
Poland	8,134	4.4	5,227	1.7	8,421	2.7	24,957	7.0
Hungary	5,385	2.9	2,733	0.9	12,260	3.9	15,570	4.4
Sweden	4,036	2.2	4,353	1.4	2,377	0.8	3,314	0.9
U. S. S. R.	2,491	1.3	12,410	3.9	30,568	9.6	23,526	6.7
Lithuania	2,127	1.1	4,881	1.5	5,475	1.7	5,563	1.6
Turkey	482	0.2	1,504	0.5	1,594	0.6	1,363	0.4
Other countries	7,570	4.1	13,247	4.2	30,984	9.8	36,057	10.2
Total . . .	**184,933**	**100.0**	**315,937**	**100.0**	**315,554**	**100.0**	**353,221**	**100.0**
including:								
China	2,066	1.1	3,342	1.1	8,057	2.6	9,797	2.8
Irish Free State	—	—	—	—	—	—	—	—

market. For the first time during the period under consideration, the Irish Free State appears on the German market with substantial quantities of eggs amounting in 1935 to 3.5 % of the total German imports.

The third place among importing countries in the world was occupied again by Spain in 1935. The fluctuations among the suppliers of the Spanish market are numerous and illustrate the variations in the world egg trade. The most important country supplying Spain in 1935 was the Belgo-Luxembourg Customs Union, followed by Poland and Argentina. It should not be forgotten that even in 1930 these three countries exported either no eggs to Spain or only negligible quantities, when the principal sources of supply were France, French Morocco and Turkey; in 1935 the importance of these countries was greatly diminished. Generally speaking, the number of sources from which Spain obtains her supplies has greatly increased. In addition to the above-mentioned countries, Spain's new suppliers include Bulgaria, Uruguay, the Irish Free State and Denmark.

IV. — EGG PRICES.

During 1935 the price of eggs showed a marked recovery in the various exporting countries and in the south-eastern countries.

Since the United Kingdom, as the greatest importer in the world, absorbs considerable quantities of eggs at all seasons of the year and from all countries, an index of the price fluctuations of eggs on the world market may be found in the average value of eggs imported into this country. During the period under review, the lowest price was registered in 1934 with 48.82 gold francs per 1000 eggs as against a maximum of 129.69 francs reached in 1930.

IX. — *Prices of 1000 eggs imported in the United Kingdom.*

	Gold francs
1935	49 47
1934	48 82
1933	56 47
1932	68.31
1931	103.56
1930	129 69

The average price of 1000 eggs in 1935 was 49.47 gold francs; although this price is slightly above that of 1934, it represents only 38.9 % of the value in 1930.

V. — WORLD IMPORTS DURING THE FIRST QUARTER OF 1936.

Imports of eggs in the 7 chief importing countries during the first three months of 1936 amounted to 157.2 million pounds as against 129.9 in 1935 and 193.5 on the average during the period 1931-1934. Four of these seven countries increased their purchases abroad compared with the previous year, while the reductions in the purchases of the other three countries were not considerable. Evidently

X. — *Imports of eggs in the shell during the first quarter of the years 1931 to 1936.*

(thousand lb.).

Countries	1936	1935	Average 1931-34	1934	1933	1932	1931	% 1936	
								1935 = 100	Average = 100
Germany	33,859	34,537	61,417	42,551	70,714	66,254	66,150	98.0	55.1
Austria	2,431	2,294	5,171	4,290	5,631	4,938	5,823	106.0	47.0
Spain	13,630	14,680	12,015	21,499	7,293	9,239	10,027	92 8	113.4
France	11,353	6.014	10,461	10,104	11,713	5,331	14,695	188 8	108.5
United Kingdom	88,724	63,891	73,445	65,881	60,148	71,609	96,143	138.9	120.8
Italy	...	2,446	8,754	6,163	3,197	16,887	8,770	...	...
Switzerland	5,673	7,069	8,913	8,746	7,168	12,405	7,332	80.3	63.7
Czechoslovakia	1,490	1,424	2,041	1,171	1,981	2,865	2,147	104.6	73.0
Total	1) **157,160**	1) **129,909**	1) **173,463**	1) **154,242**	1) **164,648**	1) **172,641**	1) **202,317**	**121.0**	**90.6**

1) Italy not included

in such a short space of time one cannot speak of an improvement, but the increase during the first quarter of this year in the imports of several countries with a large consumption, combined with a rise in the price of eggs on the markets of the principal exporting countries, may be significant.

If during the succeeding months the purchases of the importing countries remain at the level of the first quarter, the year 1935 will have marked the lowest point in the depression of the world egg market.

V. DESMIREAN.

Current information on live stock and derivatives.

Irish Free State: Pastures benefited from the rains of July and milk yields were consequently well maintained.

Great Britain and Northern Ireland: Grass was plentiful during July and the prospect of ample grazing during the autumn seems assured Cattle and sheep have done fairly well but need drier conditions Milk yields were maintained generally.

Netherlands· During the month of July the feeding conditions for milk cows were good in consequence of the satisfactory growth of grass In comparison with the corresponding figures for last year, milk production in Groningen, Gelderland and Utrecht was up to normal standard, it declined by 5 % in Zeeland. In all the other provinces milk production increased by about 5 %.

Switzerland: Grass being abundant milk production has increased in comparison with last year.

U. R. S. S According to the latest official information, the government plans for the poultry industry have been completely fulfilled. The number of incubating stations in Russia has been raised from 313 in 1935 to 342 in 1936. More than 20 million chickens have been raised in 1936 (108 % of the number planned), this number representing 6.2 million head more than last year.

Argentina (Telegram of 20 August): The health of live stock is good.

Algeria: Animals generally are in good condition. Fodder production this year will show the effect of the bad conditions which prevailed during haymaking. The rains of May and June have nearly destroyed a considerable part of the cut but they were of benefit for grazing tracts On the whole, fairly good feeding conditions are assured for the remainder of the summer

French Morocco The condition of the animals is satisfactory in all districts. Land for grazing is still covered with a tall growth but the dried up, very ligneous grasses are poor nourishment for the animals, especially in the south, where the surface waters have also practically disappeared

Union of South Africa June was unusually dry in the south-western districts of the Cape Province, grazing was comparatively scarce and stock, especially lambing ewes, were in a weak condition with the result that heavy losses of lambs were experienced Critical conditions prevailed in some of the north-western areas, there was little or no grazing and farmers were compelled to trek, heavy losses were reported and lambs had to be done away with in order to save the ewes In the coastal districts of the south-coast cattle and grazing were satisfactory but areas inland were drier and grazing was comparatively scarce Conditions were fairly satisfactory in the Karroo with the exception of the south where there were complaints of drought, cattle and grazing were on the whole in good condition and the lambing crop was successful In Bechuanaland and Griqualand west grass was plentiful and cattle were fat and healthy In the border districts cattle and grazing were in good condition and outstanding lambing results were reported Favourable conditions were experienced also in the Transkeien territory

In Natal cattle were on the whole in good condition and grazing in June was abundant

Small stock in the Orange Free State were in fair condition on the whole but cattle fell off in condition as a result of inadequate grazing in the north-eastern districts Lambing results generally were good

In the Transvaal cattle and grazing were in good condition

SUPPLEMENTARY FIGURES

U S S R In the following table are given the official figures of area and production of cereals in 1935 compared with those in 1934 and the five-year average.

CROPS	Area 1935	Area 1934	Area Average 1929 to 1933	Area % 1935: 1934 = 100	Area % 1935: Average = 100	Production 1935	Production 1934	Production Average 1929 to 1933	Production % 1935: 1934 = 100	Production % 1935: Average = 100
	1,000 acres					1,000 centals				
Wheat	91,569	87,098	83,073	105 1	110 2	679,683	670,503	503,870	101 4	134 9
Rye w)	57,134	59,371	65,737	96 2	86 9	465,565	443,838	494,524	104 9	94.1
Barley s)	20,457	20,960	18,023	97 6	113,5	183,425	150,724	141,266	121,7	129.8
Oats	45,271	44,507	42,678	101 7	106 1	402,746	416,697	308,520	96,7	130 5
Maize	7,997	9,093	9,351	88 0	85 5	60,982	84 722	82,303	72 0	74 1
Rice	341	327	307	104,1	110 8	5,717	5,670	4,600	100 8	124 3

w) Winter crop — s) Spring crop

Argentina: The final estimates of cereal and linseed production in 1935-36 are as follows:

CROPS	AREA					PRODUCTION				
	1935 36	1934 35	Average 1929 30 to 1933 34	% 1935 36		1935 36	1934 35	Average 1929 30 to 1933 34	% 1935-36	
	thousand acres			1934 1935 = 100	Average = 100	thousand centals			1934-1935 = 100	Average = 100
Wheat	11,913	17,155	17,459	69 4	68 2	83,776	144,403	136,990	58 0	61.2
Rye	583	1,324	819	44 1	71 2	2,800	8,761	4,270	32 0	65.6
Barley	1,287	1 677	1 054	76 8	122 2	10,141	17,212	11 116	58.9	91 2
Oats	1 386	2 200	2 022	63 0	68 6	11,464	19,857	21,071	57 7	54 4
Linseed	5 170	7,105	6 303	72 8	82 0	29,322	44,644	38,306	65 7	76.5

TRADE

Wheat. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	June				Eleven months (August 1-June 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934 35	1935 36	1934-35	1934-35	1934-35
Exporting Countries:										
Bulgaria	20	0	0	0	593	220	0	0	220	0
Hungary	1,523	375	0	0	6,585	6,312	0	0	6,526	0
Lithuania	31	7	0	0	1,274	580	0	0	584	0
Poland	51	183	0	0	1,105	668	0	9	1,274	9
Romania	0	963	0	0	3,353	2,059	2	4	2,538	4
Yugoslavia	322	49	0	0	326	2,482	0	2	2,500	2
U S S. R.	...	...	...	...	2) 16,610	2) 1,243	2) 0	2) 884	1,285	1,038
Canada	15,459	3,898	2	0	123,667	81,133	9	2	86,627	2
Argentina	2,269	7,156	—	—	36,857	99,356	—	—	105,866	—
Chile	..	...	...	...	1) 1,314	1) 653	1) 0	1) 395	659	410
Syria and Lebanon	4	26	0	0	159	251	7	18	278	18
Algeria	284	423	44	26	5,258	6,621	633	291	7,028	309
French Morocco	121	650	0	0	2,884	4,312	0	0	4,482	0
Tunis	15	317	29	0	2,383	1,625	168	181	2,258	185
Australia	2,019	1,903	0	0	42,876	42,170	0	0	44,924	0
New Zealand	. .	.	...	..	1) 0	1) 0	1) 172	1) 13	0	22
Importing Countries:										
Germany	128	0	185	220	1,109	119	2,017	6,832	121	6,989
Austria	0	0	278	503	0	0	2,771	4,142	0	4,802
Belgium	57	101	1,554	1,797	928	1,671	22,295	23,433	1,739	25,452
Denmark	0	0	569	472	35	31	4,493	10,130	31	10,763
Spain	0	0	0	0	0	0	18	0	0	0
Estonia	13	26	0	0	57	119	79	0	121	0
Irish Free State	0	0	522	708	0	0	7,626	8 686	0	9,460
Finland	0	0	192	176	0	0	1,420	1,188	0	1,338
France	. .	. .	...	...	1) 7,064	1) 17,791	1) 14,152	1) 13,323	22,688	15,829
Gr. Brit and N Irel	33	66	11,572	9,778	560	721	104,660	103,664	827	113,179
Greece	0	0	1,041	1,303	0	0	7,846	7,835	0	8,684
Italy	—	—	—	—	—	—	—	—	9	12,159
Latvia	0	148	0	0	877	293	0	0	659	0
Norway	0	0	295	483	0	0	3,261	3,642	0	3,907
Netherlands	0	340	1,041	604	4	765	10,412	10,324	811	11,200
Portugal	331	0	0	0	2,443	0	152	163	0	207
Sweden	137	265	57	42	1,825	1,512	926	849	1,973	902
Switzerland	0	0	1,567	1,270	2	2	9,017	9,592	2	10,750
Czechoslovakia	0	0	0	68	4	2	1,292	703	4	849
United States	15	4	2,474	911	148	1,316	28,501	14,634	1,356	15,540
Ceylon	—	—	7	11	—	—	95	33	—	33
China	7	9	260	1,607	141	273	3,735	10,465	289	10,889
India	117	2	0	0	340	243	298	101	247	101
Japan	—	—	...	...	—	—	1) 7,683	1) 9,431	—	10,878
Egypt	...	...	..	...	1) 2	1) 51	1) 2	1) 1,235	51	1,235
Union of South Afr.	...	...	...	...	1) 0	1) 2	1) 22	1) 527	2	531
Totals	**22,956**	**16,911**	**21,689**	**19,979**	**260,783**	**274,596**	**233,764**	**242,731**	**297,979**	**277,676**

Rye. — Thousand centals (1 = centals 100 lb.).

COUNTRIES	June				Eleven months (August 1-June 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934 35	1935 36	1934-35	1934-35	1934-35
Exporting Countries:										
Germany	0	0	60	381	820	51	602	5,265	51	5,393
Bulgaria	0	0	0	0	121	0	0	0	0	0
Estonia	0	168	0	0	333	659	331	22	783	22
Hungary	42	15	0	0	187	721	0	0	728	0
Latvia	157	0	0	0	1,797	1,909	0	0	1,929	0
Lithuania	139	13	0	0	1,973	1,197	0	0	1,199	0
Poland	258	1,263	0	0	4,506	11,378	0	0	11,665	0
Romania	15	0	0	0	342	0	0	0	0	0
Sweden	44	101	0	2	888	1,949	18	22	2,000	22
U. S. S. R.	...	...	—	—	2) 1,124	2) 547	—	—	624	—
Canada	348	141	0	0	1,003	545	0	11	666	11
Argentina	269	397	—	—	2,152	5,686	—	—	5,904	—
Algeria	2	0	0	0	22	24	0	0	26	0
Importing Countries:										
Austria	2	0	119	18	2	0	939	1,715	0	1 779
Belgium	0	4	203	183	26	13	3,183	1,726	31	1,797
Denmark	0	0	353	251	0	4	3,746	3,788	4	4,090
Finland	0	0	205	154	0	0	1,409	298	0	450
France	...	...	...	...	1) 0	1) 2	1) 20	1) 31	4	35
Italy	—	—	—	—	—	—	—	—	0	179
Norway	0	0	494	309	0	0	3,084	2,337	0	2,535
Netherlands	0	0	227	101	77	227	1,504	1,647	227	1,854
Switzerland	0	0	44	26	0	0	311	152	0	161
Czechoslovakia	0	0	2	2	4	4	15	18	4	20
United States	2	0	75	448	4	0	1,058	5,717	0	5,917
Totals	**1,278**	**2,102**	**1,782**	**1,875**	**15,381**	**24,916**	**16,220**	**22,749**	**25,845**	**24,265**

1) 2) See notes page 600

Wheat flour. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	June				Eleven months (August 1- June-30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
Exporting Countries:										
Germany	37	29	0	0	679	617	31	73	659	73
Bulgaria	0	0	0	0	0	0	0	0	0	0
Spain	0	0	0	0	13	0	0	0	0	0
France	...	...	...	...	1) 2,771	1) 3,788	1) 1,045	1) 1,351	4,266	1,539
Hungary	71	115	0	0	1,102	783	0	0	809	0
Italy	—	—	—	—	—	—	—	—	3,748	95
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	174	150	0	0	2,006	586	0	0	750	0
Romania	0	0	0	0	2	0	0	0	0	0
Yugoslavia	9	2	0	0	71	37	0	0	40	0
U. S. S. R.	...	...	...	...	2) 386	2) 595	2) 344	2) 205	833	207
Canada	842	842	7	33	8,887	8,536	112	373	9,310	390
United States	586	496	11	7	6,166	7,150	68	7	7,637	9
Argentina	106	137	—	—	1,576	1,927	—	—	2,138	—
Chile	...	...	...	...	1) 71	1) 44	1) 24	1) 51	49	66
India	18	29	0	0	377	269	9	4	309	4
Japan	...	...	...	...	1) 3,686	1) 6,204	1) 181	1) 22	7,194	46
Algeria	82	42	7	11	772	862	84	95	911	104
French Morocco	0	0	0	0	4	51	0	0	51	0
Tunis	22	46	0	2	384	595	26	62	624	62
Australia	1,069	1,071	0	0	11,129	13,100	0	2	14,376	2
Importing Countries,										
Austria	2	0	60	152	2	2	708	739	2	774
Belgium	4	11	0	2	55	44	84	146	51	148
Denmark	0	0	22	29	20	15	194	432	18	474
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	15	13	0	0	143	448	0	489
Finland	0	0	66	73	0	0	611	778	0	853
Gr. Brit and N Irel.	150	273	798	725	2,414	3,153	8,849	8,228	3,400	9,061
Greece	0	0	2	2	0	0	20	29	0	33
Norway	0	0	104	95	4	2	818	832	4	999
Netherlands	0	0	141	71	7	9	1,056	818	9	908
Portugal	—	—	0	31	—	—	93	146	—	150
Sweden	0	0	0	0	11	0	0	2	0	2
Czechoslovakia	0	0	0	2	4	4	20	18	4	20
Ceylon	—	—	26	35	—	—	320	381	—	403
China	0	0	57	88	22	57	789	1,407	57	1,499
Indo-China	...	...	35	33	1) 0	1) 0	370	351	0	384
Java and Madura	—	—	...	...	—	—	1,127	1,010	—	1,149
Syria and Lebanon	15	7	9	24	88	60	77	101	62	101
Egypt	...	...	...	...	1) 0	1) 0	1) 55	1) 64	0	73
Union of South Afr.	...	...	...	...	1) 2	1) 2	1) 11	1) 9	2	13
New Zealand	...	...	...	...	1) 0	1) 2	1) 201	1) 192	2	234
Totals	**3,187**	**3,250**	**1,360**	**1,428**	**42,711**	**48,494**	**17,470**	**18,426**	**57,315**	**20,364**

Barley. — Thousand centals (1 cental = 100 lb).

COUNTRIES	June				Eleven months (August 1- June-30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
Exporting Countries										
Bulgaria	0	0	0	0	44	0	0	0	0	0
Spain	0	0	0	0	15	0	0	0	0	0
Hungary	11	4	0	0	269	93	362	24	93	24
Lithuania	4	11	0	0	328	176	0	0	176	0
Poland	342	209	0	0	7,432	6,903	0	0	7,180	0
Romania	152	174	0	0	3,882	4,048	0	0	4,198	0
Czechoslovakia	2	51	0	0	783	1,109	2	2	1,140	2
Yugoslavia	0	0	0	0	2	538	24	2	538	0
U. S. S. R	...	...	—	—	2) 13,477	2) 3,045	—	—	3,669	—
Canada	666	465	0	0	2,776	6,700	0	0	7,227	0
United States	328	31	2	84	4,456	1,870	137	5,117	2,132	5,291
Argentina	388	719	—	—	4,045	9,255	—	—	9,654	—
Chile	...	...	—	—	1) 472	1) 1,186	—	—	1,217	—
India	33	0	22	0	35	390	112	9	390	13
Algeria	4	18	31	20	679	1,155	485	747	1,177	754
Egypt	...	...	...	...	1) 0	1) 0	13	15	0	18
French Morocco	403	146	0	0	2,657	6,069	0	0	6,241	0
Australia	265	13	0	0	1,124	1,327	0	0	1,380	0
Importing Countries:										
Germany	0	0	280	280	0	2	1,404	10,329	2	10,498
Austria	0	0	93	79	0	0	1,089	1,490	0	1,574
Belgium	64	68	293	344	428	454	8,763	8,139	454	8,481
Denmark	0	2	2	57	1,530	1,398	77	891	1,398	1,030
Irish Free State	0	0	194	0	7	4	421	256	4	256
France	...	...	...	...	1) 0	1) 2	1) 4,187	1) 3,549	2	3,999
Gr. Brit. and N Irel.	0	0	1,634	1,003	2	9	20,869	13,226	9	14,315
Greece	0	0	0	11	0	0	152	75	0	77
Italy	—	—	—	—	—	—	—	—	0	1,852
Norway	0	0	0	7	0	2	322	159	2	168
Netherlands	0	0	697	159	214	194	6,061	5,512	194	5,913
Switzerland	0	0	172	126	0	0	2,487	2,533	0	2,696
Syria and Lebanon	141	22	0	7	853	134	7	44	139	44
Tunis	11	139	0	2	1,664	201	46	1,008	395	1,010
Totals	**2,814**	**2,072**	**3,420**	**2,179**	**47,174**	**46,264**	**17,020**	**53,127**	**49,011**	**58,015**

COUNTRIES	June				Eleven months (August 1-June 30)				Twelve months (Apgust 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935 36	1934-35	1935-36	1934-35	1934-35	1934-35
	Oats. — Thousand centals (1 cental = 100 lb).									
Exporting Countries										
Irish Free State	0	0	0	0	0	0	0	0	0	0
Hungary	42	0	0	0	101	0	0	0	0	0
Lithuania	0	9	0	0	518	212	0	0	212	0
Poland	203	64	0	0	2,425	937	0	0	994	0
Romania	11	9	0	0	379	64	0	0	68	0
Czechoslovakia	0	29	0	0	82	31	13	2	53	2
Yugoslavia	0	4	0	0	73	276	0	0	280	0
Canada	423	500	0	0	3,569	4,601	0	0	4,965	0
United States	117	82	0	130	203	117	22	4,819	150	4,828
Argentina	209	650	—	—	2,937	13,082	—	—	13,362	—
Chile	...	...	0	0	1) 531	1) 1,047	0	0	1,243	0
Tunis	2	44	0	0	214	410	0	0	467	0
Australia	4	4	0	0	95	260	2	2	265	2
Importing Countries										
Germany	0	0	13	187	0	13	269	4,612	13	4,791
Austria	0	0	71	71	0	0	560	229	0	287
Belgium	0	0	46	108	0	0	842	313	0	430
Denmark	4	0	35	77	439	657	137	829	657	884
Estonia	0	0	0	0	0	15	44	0	15	0
Finland	0	0	35	0	0	2	741	11	2	11
France	..	...	.		1) 7	1) 31	1) 381	1) 340	33	425
Gr Brit. and N Irel	0	0	443	500	20	18	2,597	2,998	18	3,488
Italy	—	—	—	—	—	—	—	—	0	4,808
Latvia	0	0	0	0	130	0	0	0	0	0
Norway	0	0	0	15	0	0	7	20	0	64
Netherlands	1	0	35	170	214	11	448	776	11	873
Sweden	0	0	18	0	179	37	267	24	37	24
Switzerland	0	0	357	271	0	0	4,076	4,083	0	4,354
Algeria	46	7	0	4	212	128	40	126	132	141
Totals	**1,065**	**1,402**	**1,053**	**1,533**	**12,328**	**21,949**	**10,446**	**19,184**	**22,977**	**25,412**

COUNTRIES					Eight months (November 1 June 30)				Twelve months (Nov 1 Oct 31)	
	Maize. — Thousand centals (1 cental = 100 lb)									
Exporting Countries										
Bulgaria	518	0	0	0	1,195	399	0	0	401	0
Hungary	0	0	496	245	31	130	6,618	505	130	2,996
Romania	1 543	1,054	0	0	13 999	7,020	0	0	11,131	0
Yugoslavia	51	741	0	0	946	9,961	0	0	12,652	0
United States	106	2	20	3 428	207	216	5,267	10,781	251	23 034
Argentina	9 639	15,289	—	—	97 121	82,815	—	—	143,349	—
Java and Madura	353	88	—	—	1,958	1,310	—	—	1,422	—
Indo China	915	509	—	—	4,987	5,509	—	—	10,099	—
Syria and Lebanon	4	2	0	0	66	2	2	7	2	7
Egypt	...	...	. .	...	1) 0	1) 0	1) 7	1) 18	0	31
Union of South Afr	0	928	..	...	1,440	6,592	1) 4	1) 0	10 247	0
Importing Countries										
Germany	0	0	320	677	0	0	3,422	6,614	0	7,738
Austria	0	0	639	611	0	0	4,861	7,161	0	9,431
Belgium	9	93	1,493	1,396	368	545	13,265	9,808	728	16,208
Denmark	0	0	181	545	0	0	2,485	2,601	0	5,084
Spain	0	0	20	13	0	0	1,482	434	0	1,052
Irish Free State	0	0	317	516	0	0	2,908	3,746	0	6,237
Finland	0	0	112	106	0	0	1,526	364	0	988
France	.	...	...	...	1) 2	1) 7	1) 9,182	1) 10,110	9	14,154
Gr. Brit and N. Irel	88	185	4,879	5,309	818	1,415	51,950	39,092	2,222	64,492
Greece	0	0	218	77	0	0	1,210	725	0	988
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	243	302	0	0	1,698	1,448	0	2,754
Netherlands	2	0	1,340	1,537	2	0	13,556	13,007	0	19,321
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	37	7	2	0	293	437	2	548
Sweden	0	0	196	60	0	0	948	342	0	891
Switzerland	0	0	123	123	0	0	1,261	1,107	0	1,892
Czechoslovakia	0	0	190	236	0	0	1,349	1,817	0	2,793
Canada	0	0	117	214	44	2	1,649	2,657	4	4,566
Japan	—	—	...	...	—	—	1) 3,708	1) 9	—	1,777
Tunis	0	2	0	0	4	2	0	55	7	55
Totals	**13,228**	**18,893**	**10,941**	**15,402**	**123,190**	**115,925**	**128,651**	**112,845**	**192,656**	**187,037**

---

1) **See notes page 600**

Rice. — Thousand central (1 cental = 100 lb.).

COUNTRIES	June				Six months (January 1-June 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
Exporting Countries:										
Spain	71	4	0	0	558	375	0	0	613	0
Italy	—	—	—	—	—	—	—	—	—	—
United States	0	331	112	11	104	906	463	412	1,667	534
Brazil	...	...	—	—	1) 571	1) 357	—	—	2,086	—
India	2,275	2,500	282	165	17,639	25,752	2,064	1,931	37,179	4,784
Indo-China	3,741	3,309	...	...	21,184	26,577	1) 15	1) 7	38,921	33
Siam	2,544	2,227	—	—	17,381	17,974	—	—	34,350	—
Egypt	...	...	...	...	1) 1,038	1) 492	1) 0	1) 13	1,561	15
Importing Countries:										
Germany	68	40	434	410	236	207	1,779	2,024	611	4,209
Austria	0	0	60	49	0	0	269	326	0	745
Belgium	2	4	57	115	57	20	432	454	62	933
Denmark	0	0	9	13	0	0	62	60	0	90
Estonia	—	—	2	2	—	—	9	7	—	18
Irish Free State	0	0	2	11	0	0	44	31	0	55
France	...	...	...	...	1) 130	1) 331	1) 5,617	1) 4,442	514	9,473
Gr. Brit. and N Irel.	9	11	249	220	79	99	1,413	1,618	141	2,672
Greece	0	0	51	37	0	0	291	278	0	593
Hungary	0	0	29	31	0	0	183	161	0	414
Latvia	0	0	0	2	0	0	7	4	0	13
Lithuania	0	0	0	0	0	0	2	4	0	9
Norway	0	0	13	20	0	0	62	68	0	110
Netherlands	190	179	278	344	794	1,003	2,039	1,667	2,044	3,287
Poland	13	15	187	357	42	53	639	681	196	1,045
Portugal	—	—	7	60	—	—	42	172	—	414
Sweden	—	—	9	7	—	—	143	165	—	227
Switzerland	0	0	22	29	0	0	223	214	0	511
Czechoslovakia	0	0	220	243	0	0	514	664	0	1,473
Yugoslavia	0	0	66	24	0	0	247	196	0	441
Canada	2	0	229	220	9	2	536	465	4	644
Chile	—	—	...	...	—	—	1) 207	1) 97	—	306
Ceylon	0	0	1,049	767	2	2	6,294	6,052	2	12,511
China	99	0	1,795	3,567	333	55	4,998	24,663	146	28,581
Java and Madura	7	4	...	...	31	7	1) 157	1) 2 445	154	2 604
Japan	...	...	...	...	1) 66	1) 582	1) 159	1) 77	708	866
Syria and Lebanon	0	0	44	51	0	0	190	209	0	414
Algeria	0	0	9	11	2	0	139	90	2	152
Tunis	0	0	2	0	0	0	20	20	0	26
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 525	1) 401	0	1,204
Australia	18	46	4	2	106	130	35	26	247	51
New Zealand	...	...	...	...	1) 0	1) 0	1) 42	1) 44	0	79
Totals	**9,039**	**8,670**	**5,221**	**6,768**	**60,362**	**74,924**	**29,861**	**50,188**	**121,208**	**79,536**

Linseed. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	June				Six months (January 1-June 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
Exporting Countries.										
Lithuania	31	2	0	0	179	79	0	0	280	0
Argentina	1,636	2,359	—	—	14,985	22,448	—	—	38,958	—
India	553	198	0	0	3,212	1,219	0	0	2,919	0
Tunisia	0	0	0	0	0	0	0	0	2	0
Importing Countries:										
Germany	0	0	567	84	0	0	2,875	2,531	0	5,452
Belgium	0	2	108	161	86	82	1,195	1,334	112	2,725
Denmark	—	—	37	33	—	—	238	313	—	562
Spain	—	—	33	31	—	—	165	194	—	558
Estonia	0	0	4	0	2	2	15	4	4	20
Finland	0	0	2	2	0	0	73	44	0	84
France	...	...	...	...	1) 2	1) 2	1) 3,159	1) 2,723	4	5,697
Gr Brit. and N. Irel.	0	0	516	326	0	2	3,029	2,632	2	5,774
Greece	0	0	2	13	0	0	20	49	0	119
Hungary	0	0	0	0	0	4	0	0	9	0
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	2	2	26	49	31	46	57	84
Norway	0	0	49	53	0	0	273	331	0	536
Netherlands	2	0	377	728	71	53	3,298	5,745	77	8,871
Poland	4	0	0	0	75	0	0	0	26	0
Sweden	—	—	40	132	—	—	377	527	—	915
Czechoslovakia	0	0	55	40	0	0	271	366	0	578
Yugoslavia	0	0	11	9	0	0	60	126	0	185
Canada	0	0	68	22	4	4	414	256	11	284
United States	—	—	419	974	—	—	3,821	5,038	—	9,833
Japan	...	...	..	...	1) 0	1) 2	1) 110	1) 223	2	478
Australia	0	0	11	123	0	0	231	483	0	750
Totals	**2,226**	**2,561**	**2,301**	**2,733**	**18,642**	**23,944**	**19,655**	**22,965**	**42,463**	**43,505**

---

1) See notes page 600

COUNTRIES	June				Six months (January 1-June 30)				Twelve months (January 1-Dec 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
Butter. — (Thousand lb.).										
Exporting Countries:										
Austria	840	853	2	2	3,100	2,690	7	7	5,688	18
Denmark	31,006	31,947	0	0	161,179	154,421	7	0	304,936	0
Estonia	3,188	2,515	0	0	9,121	9,286	0	0	23,894	0
Irish Free State	9,564	11,920	2	4	20,929	23,792	4	11	59,470	40
Finland	2,787	1,852	0	0	15,192	11,945	0	0	22,582	0
Hungary	739	642	0	0	3,527	2,359	0	0	5,516	0
Latvia	4,308	4,597	0	0	16,244	16,041	0	0	37,073	0
Lithuania	5,049	3,064	0	0	11,413	9,319	0	0	26,795	0
Norway	11	0	0	0	362	247	0	0	417	4
Netherlands	12,868	10,728	2	0	64,642	52,935	33	220	103,146	430
Poland	1,049	2,377	0	0	7,871	3,012	0	2	12,533	2
Sweden	4,270	4,195	0	0	18,519	23,865	412	2	44,664	1,340
U. S S R.	..	...	...	...	2) 1 770	2) 10,917	2) 295	2) 353	64,801	529
Argentina	1,620	121	—	—	11,389	9,575	—	—	14,941	—
India	13	11	71	62	121	93	514	379	240	789
Syria and Lebanon	37	121	7	53	331	298	106	205	463	309
Australia	7,145	5,624	0	0	106 257	150,382	2	2	256,769	2
New Zealand	26,158	14,637	—	—	156,621	156,921	—	—	312,403	—
Importing Countries										
Germany	0	2	9,520	7,736	0	7	75,046	78,086	13	156,529
Belgium	4	11	130	273	33	33	7,072	7,588	71	13,312
Spain	7	2	2	2	11	15	7	64	26	79
France	...	...	...	..	1) 2,504	1) 3,217	1) 3,318	1) 536	11,605	1,506
Gr. Brit. and N. Irel	514	615	98,190	95,313	5,148	10,997	549,464	565,097	17,007	1,076,827
Greece	—	—	117	49	—	—	375	340	—	1,014
Italy	—	—	—	—	—	—	—	—	—	—
Switzerland	0	0	24	20	2	0	1,466	90	4	302
Czechoslovakia	0	0	110	220	2	0	340	1,761	4	2,928
Canada	908	31	0	7	1,063	205	106	42	7,696	148
United States	134	62	168	1,437	454	313	4,680	21,486	957	22,675
Ceylon	—	—	68	66	—	—	375	483	—	855
Java and Madura	—	—	..	..	—	—	1) 3,889	1) 4,725	—	10,247
Japan	—	—	...	..	—	—	1) 7	1) 11	—	22
Egypt	...	.	.	..	1) 33	1) 104	1) 478	1) 478	128	994
Tunis	0	0	132	130	2	11	1,065	1,133	24	2,017
Totals	**112,219**	**95,927**	**108,545**	**105,374**	**617,740**	**653,000**	**649,068**	**683,101**	**1,333,866**	**1,292,918**
Cheese. — (Thousand lb.).										
Exporting Countries										
Bulgaria	251	170	0	0	1,878	1,477	0	0	4,224	0
Denmark	1,728	1,296	0	0	11,058	6,691	9	18	14,689	29
Finland	756	772	2	0	5,071	4,480	9	4	9,365	22
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	417	2	0	0	452	448	0	2	496	2
Norway	245	238	15	18	1,715	1,431	108	123	3,146	251
Netherlands	10,384	11,868	57	55	57,272	65,138	428	355	134,597	838
Poland	7	0	18	33	49	500	119	163	620	287
Switzerland	3,364	3,364	218	212	21,896	18,770	1,488	1,664	40,248	3,851
Czechoslovakia	152	192	196	223	862	800	1,279	1,177	1,814	2,663
Yugoslavia	571	476	2	4	1,074	1,168	15	29	4,381	57
Canada	5,315	1,735	66	75	13,221	4,154	432	509	55,720	1,274
Australia	150	403	4	4	5,714	8,909	31	29	15,335	77
New Zealand	15,252	11,323	...	...	100,661	112,663	1) 0	1) 0	193,487	0
Importing Countries										
Germany	20	46	4,608	4,345	165	430	30,287	29,200	728	61,661
Austria	362	335	209	196	4,517	3,684	1,019	983	7,366	1,724
Belgium	18	33	4,504	4,453	150	126	23,144	23,629	355	50,726
Spain	9	18	46	293	62	66	664	1,279	108	2,524
Irish Free State	77	33	2	4	342	148	64	35	1,027	62
France	...	...	...	...	1) 10,256	1) 11,277	1) 13,190	1) 14,445	24 628	34,807
Gr. Brit. and N. Irel.	461	474	28,016	20,117	2,956	2,732	147,426	158,610	5,818	304,980
Greece	123	0	35	121	245	126	231	807	181	1,120
Hungary	31	4	0	0	364	95	0	2	278	4
Portugal	—	—	22	29	—	—	123	179	—	417
Sweden	—	—	212	86	—	—	1,669	595	—	2,502
United States	143	104	4,257	3,836	589	604	24,352	23,905	1,153	48,934
India	0	0	71	62	0	2	485	553	4	1,276
Java and Madura	—	—	...	...	—	—	1) 542	1) 703	—	1,920
Syria and Lebanon	11	101	51	97	134	315	560	558	503	979
Algeria	4	7	886	913	49	77	5,783	5,939	119	13,349
Egypt	...	...	...	...	1) 7	1) 31	1) 3,003	1) 2,906	86	7,390
Tunis	7	9	265	179	82	29	1,327	1,380	46	2,948
Totals	**39,858**	**33,003**	**43,762**	**35,355**	**240,841**	**246,371**	**257,787**	**269,776**	**520,522**	**546,614**

---

1) 2) See notes page 600.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Cotton. — Thousand centals (1 cental = 100 lbs.).									
Exporting Countries										
United States	1,565	1,933	62	33	31,800	24,930	688	503	26,511	536
Argentina	157	112	—	—	849	575	—	—	694	—
Brazil	...	...	—	—	1) 2,253	1) 2,932	—	—	3,567	—
India	1,235	1,060	126	249	13,781	11,806	1,155	1,693	12,553	1,841
Egypt	...	.	—	—	1) 7,187	1) 7,057	—	—	7,912	—
Importing Countries										
Germany	0	66	487	593	573	882	6,936	5 741	966	6,391
Austria	0	0	46	53	0	4	833	628	4	672
Belgium	26	55	168	181	507	670	2,013	1,878	710	2,070
Denmark	—	—	18	15	—	—	163	163	—	185
Spain	2	2	238	234	33	49	2,077	1,991	51	2,161
Estonia	0	0	7	7	0	0	106	104	0	117
Finland	0	0	15	11	0	4	260	265	4	287
France	...	...	...	..	1) 298	1) 549	1) 6,151	1) 4,187	620	5,055
Gr. Brit and N Irel	60	64	1,325	831	608	657	13,810	10,485	710	12,170
Greece	0	0	4	26	11	11	104	141	11	165
Hungary	0	0	44	31	0	0	507	448	0	489
Italy	—	—	—	—	—	—	—	—	2	3,501
Latvia	0	0	7	11	0	0	88	106	0	108
Norway	0	0	4	4	0	0	64	60	0	64
Netherlands	0	0	53	49	4	4	915	789	4	847
Poland	0	0	112	117	4	9	1,486	1,296	9	1,437
Portugal	—	—	24	35	—	—	534	423	—	448
Sweden	—	—	55	44	—	—	617	569	—	624
Switzerland	0	0	33	40	0	2	509	531	2	564
Czechoslovakia	2	4	119	97	44	66	1,995	1,437	73	1,554
Yugoslavia	0	0	29	26	0	0	335	287	0	320
Canada	—	—	75	75	—		1,299	1,142	—	1,241
China	29	7	77	198	860	368	875	1,550	384	1,640
Japan	.		..	..	1) 456	1) 545	1) 14,659	1) 14,795	595	17,430
Algeria	0	0	0	0	0	4	4	4	4	4
Totals	**3,074**	**3,303**	**3,128**	**2.960**	**59,268**	**51,124**	**58,183**	**51,216**	**55,386**	**61,921**

Wool. — (Thousand lb.)

					TEN MONTHS (September 1 June 30)				TWELVE MONTHS (Sept 1-August 31)	
Exporting Countries										
Irish Free State	990	893	75	24	12,383	10,276	401	613	13,486	646
Hungary	31	0	150	137	580	1,329	1,528	3,095	1,867	3,267
Argentina a)	9,658	28,898	—	—	230,313	247,884	—	—	269,664	—
Argentina b)	3,053	3,818	—	—	28,261	25,982	—	—	32,207	—
Chile	.	.	...	..	1) 17,359	1) 17,522	1) 908	1) 150	21,918	240
India	3,576	6,623	265	505	49,922	42,931	6,147	6,660	52,521	7,423
Syria and Lebanon	412	161	13	2	3,680	5,262	185	82	5,545	82
Algeria	2,403	1,246	313	335	11,991	6,204	1,691	1,982	8,177	2,337
Egypt		...	...	...	1) 2,668	1) 2,079	1) 62	1) 37	3,574	55
Un. of S Africa a)	9,156	9,632	...	...	206,303	210,738	1) 97	1) 57	213,563	57
Un. of S Africa b)	454	816	...	...	5,461	7,022	1) 1,651	1) 1,133	8,620	1,468
Australia a)	19,158	45,453	880	126	701,754	775,046	8,757	3,316	815,232	3,695
Australia b)	4,129	5,853	0	2	54,490	60,943	110	93	73,571	132
New Zealand a)	42,302	5,423	.	...	295,628	152,909	1) 90	1) 101	160,673	101
New Zealand b)	5,040	5,822	...	...	42,223	35,869	1) 22	1) 26	46,196	37
Importing Countries										
Germany a)	0	18	20,884	30,206	366	5,326	154,754	215,948	5,701	235,040
Germany b)	42	90	4,290	4,337	1,131	1,951	27,805	49,022	2,086	55,398
Austria	22	9	2,136	1,982	218	1,027	20,887	15,571	1,038	18,843
Belgium a)	2,156	10,426	12,231	21,244	60,632	87,947	198,972	188,540	99,235	222,639
Belgium b)	1,559	2,077	311	648	21,685	17,033	4,306	3,532	20,227	4,405
Denmark	31	29	452	344	337	311	4,348	4,076	401	4,700
Spain	254	84	123	2,169	4,015	2,606	6,191	9,835	3,128	10,697
Finland	0	2	470	439	203	220	4,769	4,475	220	5,417
France	...	...	...	...	1) 40,772	1) 32,686	1) 291,188	1) 262,893	43,863	375,363
Gr Brit and N. Irel.	25,988	38,548	67,980	54,961	271,853	269,371	802,988	739,362	317,070	836,329
Greece	220	66	1,014	692	1,215	545	9,306	5,827	721	7,568
Italy a)	—	—	—	—	—	—	—	—	628	88,373
Italy b)	—	—	—	—	—	—	—	—	1,186	14,127
Norway	99	82	220	181	944	1,160	2,412	1,931	1,329	2,304
Netherlands a)	238	137	443	692	2,652	2,778	5,695	5,584	3,060	6,272
Netherlands b)	31	49	260	721	1,116	1,349	4,279	6,658	1,501	7,857
Poland	0	0	1,107	6,177	152	97	38,173	29,798	112	36,346
Sweden	—	—	862	1,567	—	—	16,967	15,549	—	18,263
Switzerland	26	2	1,958	2,163	192	187	13,530	18,219	212	22,053
Czechoslovakia	97	57	2,465	3,263	941	1,321	36,551	26,495	1,429	33,213
Yugoslavia	723	18	939	639	4,255	990	7,593	6,241	1,107	7,690
Canada	492	20	2,910	2,235	7,374	4,308	19,676	9,828	6,261	11,973
United States	0	0	17,542	15,933	22	24	208,269	108,113	27	147,234
Japan	..	...	...	...	1) 833	1) 306	1) 232,090	1) 163,901	507	224,482
Tunis	119	179	75	20	959	847	448	236	983	295
Totals	**132,459**	**166,531**	**140,368**	**151,744**	**2,084,883**	**2,034,386**	**2,132,846**	**1,908,979**	**2,238,846**	**2,416,421**

Coffee. — (Thousand lb).

COUNTRIES	JUNE		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1-June 30)
	1936	1935	1935-36	1934-35	1934-35
			EXPORTS		
Exporting Countries:					
Brazil	...	..	1) 1,919,311	1) 1,600,032	1,773,757
India	880	2,319	26,149	16,517	16,517
Java and Madura	2,489	4,612	54,329	65,480	65,480
Importing Countries					
Germany	0	0	0	66	66
Belgium	51	22	728	159	159
France	...	..	1) 4	1) 7	9
Gr. Britain and N Ireland	1,036	1,475	23,473	18,962	18,962
Netherlands	55	882	6,618	11,524	11,524
Portugal	359	214	3,430	2,712	2,712
Switzerland	0	0	2	553	553
Canada	11	18	214	115	115
United-States	767	584	8,794	6,625	6,625
Ceylon	2	0	2	4	4
Syria and Lebanon	0	0	4	0	0
Australia	2	24	24	73	73
Totals	—	—	—	—	**1,896,556**
			IMPORTS		
Importing Countries					
Germany	28 519	24,855	329,173	327,491	327,491
Austria	935	886	11,462	12,291	12,291
Belgium	8,007	7,875	108,984	103,765	103,765
Bulgaria	106	86	1,100	1,060	1,060
Denmark	5,688	3,785	56,467	58,238	58,238
Spain	4,310	3,794	52,913	52,117	52,117
Estonia	11	15	192	163	163
Irish Free State	44	26	606	520	520
Finland	4,147	3,243	42,428	39,117	39,117
France		...	1) 392,585	1) 352,232	392,492
Gr Britain and N. Ireland	1,243	1,755	52,270	57,574	57,574
Greece	1,003	1,109	13,314	12,604	12,604
Hungary	278	112	4,398	5,534	5,534
Italy	—	—	—	—	86,975
Latvia	13	15	251	143	143
Lithuania	13	29	412	419	419
Norway	1,918	3,516	41,515	35,894	35,894
Netherlands	2,520	5,897	92,996	62,949	62,949
Poland	628	1,129	11,718	15,668	15,668
Portugal	1,089	1,431	13,336	15,847	15,847
Sweden	7,185	9,502	105,842	97,506	97,506
Switzerland	2,053	4,484	38,281	32,476	32,476
Czechoslovakia	2,055	2,218	23,832	23,810	23,810
Yugoslavia	1,779	1,071	15,210	13,770	13,770
Canada	3,477	3,530	39,196	31,800	31,800
United States	124,037	128,373	1,853,267	1,551,815	1,551,815
Chile	...	..	1) 7,092	1) 4,974	5,743
Ceylon	130	247	2,738	3,272	3,272
Japan	..	...	1) 10,307	1) 6,376	7,017
Syria and Lebanon	172	238	2,390	2,286	2,286
Algeria	3,261	2,813	32,452	31,171	31,171
Egypt	...	...	1) 15,421	1) 14,412	15,657
Tunisia	313	295	3,342	3,382	3,382
Union of S. Africa	...	...	1) 29,075	1) 24,255	26,960
Australia	549	414	4,619	3,567	3,567
New Zealand	...	...	1) 377	1) 377	456
Exporting Countries:					
India	0	0	0	0	0
Totals	**205,483**	**212,743**	**3,409,561**	**2,998,875**	**3,131,549**

Tea. — (Thousand lb)

COUNTRIES	JUNE		TWELVE MONTHS (July 1 June 30)		TWELVE MONTHS (July 1) June 30)
	1936	1935	1935 36	1934 35	1934-35
			EXPORTS		
Exporting Countries					
Ceylon	20,097	21,555	223,530	213,701	213,701
China	4,965	5,633	76,975	96,477	96,477
India	12,884	14,919	316,389	327,914	327,914
Java and Madura	10,915	10,684	118,230	120,849	120,849
Japan	...	...	1) 30,223	1) 29,097	30,986
Importing Countries					
Belgium	0	0	2	9	9
Irish Free State	0	0	22	256	256
France	...	...	1) 15	1) 24	26
Gr. Brit and N Irel.	5,326	6,815	72,067	68,831	68,831
Netherlands	7	18	112	132	132
Syria and Lebanon	0	9	11	9	9
Algeria	4	0	9	93	93
Union of S. Africa	...	...	1) 267	1) 29	31
Australia	49	57	635	802	802
New Zealand	..	...	1) 121	1) 110	112
Totals	**54,247**	**59,681**	**838,608**	**858,333**	**860,226**
			IMPORTS		
Importing Countries					
Germany	637	774	10,152	10,216	10,216
Austria	37	42	789	836	836
Belgium	46	49	562	613	613
Denmark	73	88	1,120	1,230	1,230
Spain	13	35	249	273	273
Estonia	7	4	95	77	77
Irish Free State	1,973	1,422	21,755	22,816	22,816
Finland	20	18	276	238	238
France	...	...	1) 2,659	1) 2,004	2,189
Gr Britain and N. Ireland	29,507	29,374	486,313	507,905	507,905
Greece	44	11	445	448	448
Hungary	15	2	430	611	611
Italy	—	—	—	—	342
Latvia	4	7	71	84	84
Lithuania	11	2	93	77	77
Norway	24	26	362	337	337
Netherlands	2,674	2,368	28,980	30,034	30,034
Poland	317	269	3,461	3,814	3,814
Portugal	31	31	443	399	399
Sweden	64	86	1,016	944	944
Switzerland	86	108	1,819	1,609	1,609
Czechoslovakia	55	64	1,166	1,056	1,056
Yugoslavia	29	13	381	439	439
Canada	1,859	2,612	44,214	30,287	30,287
United States	5,172	5,498	83,917	83,571	83,571
Chile	...	...	1) 4,063	1) 4,687	5,093
Syria and Lebanon	11	0	298	470	470
Algeria	218	231	2,518	2,897	2,897
Egypt	...	...	1) 12,763	1) 14,198	15,459
Tunisia	236	306	6,321	3,417	3,417
Union of S. Africa	...	...	1) 12,456	1) 12,154	13,056
Australia	4,665	4,550	41,557	47,095	47,095
New Zealand	...	...	1) 9,650	1) 8,514	9,374
Exporting Countries					
China	31	33	688	602	602
India	174	141	5,247	3,111	3,111
Java and Madura	...	...	1) 915	1) 1,559	1,649
Totals	**48,033**	**48,164**	**787,244**	**798,622**	**802,670**

---

1) See notes page 600.

Cacao. — (Thousand lb.).

COUNTRIES	JUNE 1936	JUNE 1935	NINE MONTHS (Oct 1-June 30) 1935-36	NINE MONTHS (Oct 1-June 30) 1934-35	TWELVE MONTHS (Oct 1-Sept 30) 1934-35
			EXPORTS		
Exporting Countries					
Grenada	882	840	8,342	7,926	8,836
Dominican Republ.	6,005	9,506	37,783	47,766	62,620
Brazil	...	...	1) 157,089	1) 124,328	224,729
Ecuador	3,953	9,453	37,007	31,949	41,557
Trinidad	1,764	3,653	24,533	37,298	45,748
Venezuela	4,409	4,621	22,805	20,192	28,464
Ceylon	357	606	4,868	5,867	7,893
Java and Madura	121	154	2,522	1,967	3,283
Cameroon (Fr m. t)	1,014	1,501	47,971	43,555	48,956
Ivory Coast	7,923	4,881	100,930	82,720	97,575
Gold Coast	20,900	21,416	539,788	468,841	541,034
Nigeria and Cameroon (Brit m. t)	11,200	7,244	173,716	160,393	184,186
Saint Thomas and Prince Is.	3,071	355	28,429	18,942	22,073
Togoland (Fr m. t)	1,960	1,918	17,648	16,125	19,661
Importing Countries					
Germany	0	0	7	88	88
Belgium	33	0	40	176	176
France	...	...	1) 9	1) 2	2
Gr. Brit. and N. Irel.	734	741	5,073	11,729	15,499
Netherlands	432	359	3,931	3,422	4,643
Australia	11	0	52	392	408
Totals	**64,769**	**67,248**	**1,212,548**	**1,083,678**	**1,357,431**
			IMPORTS		
Importing Countries					
Germany	14,663	10,335	133,290	130,682	165,896
Austria	1,093	966	9,383	10,046	12,485
Belgium	1,067	1,268	18,067	14,163	20,651
Bulgaria	90	22	1,349	639	805
Denmark	692	1,323	7,901	6,757	8,550
Espagne	2,271	2,443	13,287	18,801	22,615
Estonia	60	22	708	529	756
Irish Free State	295	75	3,056	2,568	2,820
Finland	18	13	236	187	256
France	..		1) 91,036	1) 62,168	90,531
Gr. Brit. and N Irel.	10,002	8,702	262,327	179,990	196,128
Greece	223	90	2,674	2,152	2,840
Hungary	507	633	7,745	6,563	8,638
Italy	—	—	—	—	26,652
Latvia	77	66	928	957	1,235
Lithuania	29	46	847	582	758
Norway	560	1,122	4,032	5,688	6,731
Netherlands	11,541	8,968	118,274	107,390	134,247
Poland	1,257	1,314	10,950	12,780	15,845
Portugal	40	90	873	882	1,124
Sweden	758	694	9,061	9,608	12,103
Switzerland	569	1,631	15,640	12,571	16,052
Czechoslovakia	1,142	1,724	22,562	17,738	23,199
Yugoslavia	99	71	1,499	1,237	1,867
Canada	2,463	2,295	21,385	20,827	25,790
United States	16,070	27,624	453,567	448,715	566,112
Japan	...	...	1) 2,800	1) 2,727	3,311
Australia	163	600	11,755	11,499	14,500
New Zealand	...	...	1) 2,780	2) 2,952	3,393
Totals	**65,749**	**72,137**	**1,228,012**	**1,091,398**	**1,385,890**

Total Wheat and Flour *)

(Thousand centals).

COUNTRIES	JUNE 1936	JUNE 1935	ELEVEN MONTHS (Aug 1-June 30) 1935-36	ELEVEN MONTHS (Aug 1-June 30) 1934-35	TWELVE MONTHS (August 1-July 31) 1934-35
			a) NET EXPORTS		
Exporting Countries					
Bulgaria	20	0	593	220	220
Espagne	0	0	3)	0	0
Estonia	13	26	3)	119	121
France	...	...	3)	7,716	10,494
Hungary	1,618	527	8,056	7,355	7,604
Latvia	0	148	877	293	659
Lithuania	31	7	1,274	580	584
Poland	282	384	3,779	1,442	2,264
Portugal	331	3)	2,167	3)	3)
Romania	0	963	3,353	2,055	2,533
Sweden	79	223	915	661	1,069
Yugoslavia	333	51	421	2,531	2,551
U S. S R.	...	...	2) 16,665	2) 880	1,082
Canada	16,570	4,976	135,358	92,015	98,518
Argentina	2,410	7,339	38,958	101,924	108,701
Chile	...	...	1) 5,988	1) 8,501	225
India	141	40	534	494	540
Syria and Lebanon	13	2	168	179	207
Algeria	340	439	5,542	7,352	7,774
French Morocco	121	650	2,890	4,381	4,511
Tunisia	15	377	2,692	2,156	2,637
Australia	3,446	3,331	57,715	59,633	64,093
Totals	**25,763**	**19,483**	**287,945**	**300,487**	**316,387**
			b) NET IMPORTS		
Importing Countries					
Germany	7	183	44	5,988	6,120
Austria	355	705	3,713	5,124	5,831
Belgium	1,490	1,684	21,405	21,896	23,839
Denmark	597	509	4,689	10,655	11 341
Espagne	4)	4)	0	4)	4)
Estonia	4)	4)	22	4)	4)
Irish Free State	542	725	7,818	9,284	10,124
Finland	280	273	2,233	2,227	2,469
France	...	...	1) 4,786	1) 4)	4)
Gr Brit. and N Irel.	12,403	10,313	112 681	109,709	119,901
Greece	1,043	1,305	7,873	7,873	8,728
Italy	—	—	—	—	7,289
Norway	434	608	4,345	4,815	5,232
Netherlands	1,228	359	11,808	10,637	11,590
Portugal	4)	42	4)	357	408
Romania	0	4)	4)	4)	4)
Switzerland	5) 1,567	5) 1,270	9,015	9,590	5) 10,748
Czechoslovakia	0	71	1,307	714	864
Total Europe	*19,946*	*18,047*	*191,739*	*198,869*	*224,484*
United States	1,691	254	20,223	3,794	3,904
Ceylon	42	57	520	542	571
China	331	1,715	4,616	11,991	12,522
Indo-China	46	44	494	467	511
Japan	...	...	1) 3,009	1) 1,188	1,336
Java and Madura	...	...	1) 1,501	1) 1,347	1,532
Egypt	...	...	1) 73	1) 1,270	1,299
Union of S. Africa	...	...	1) 33	1) 534	545
New Zealand	...	...	1) 439	1) 267	331
Totals	**22,056**	**20,117**	**222,647**	**220,269**	**247,035**

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1.333,333 centals of grain.

a) Excess of exports over imports. — *b*) Excess of imports over exports

1) Data up to 31 May — 2) Data up to 30 April. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE.

Statistics received too late for inclusion in the tables and statistics for July already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
EGYPTE		June	June	June	June
Wheat	1000 centals	0	0	0	0
Wheat flour. . .	» »	0	0	13	4
Barley	» »	0	0	0	0
Maize	» »	0	0	0	2
Rice	» »	163	86	0	0
Butter	1000 lb.	2	9	104	53
Cheese	» »	7	4	518	430
Cotton	1000 centals	476	450	—	—
Wool	1000 lb	287	463	0	11
Coffee	» »	—	—	1,903	1,246
Tea . . .	» »	—	—	1,217	1,261
FRANCE					
Wheat	1000 centals	860	3,611	939	1,202
Rye	» »	0	0	2	0
Wheat flour . . .	» »	223	260	97	99
Barley	» »	0	0	375	185
Oats	» »	0	0	42	37
Maize	» »	0	0	538	545
Rice	» »	18	40	1,900	562
Linseed . . .	» »	0	0	456	278
Butter	1000 lb	1,618	1,243	134	104
Cheese	» »	1,819	1,874	2,842	2,335
Cotton	1000 centals	18	37	443	386
Wool	1000 lb.	3,691	3,655	31,079	37,946
Coffee	» »	0	0	33,144	40,285
Tea	» »	2	0	198	183
Cacao	» »	0	0	9,687	7,586
GERMANY		July	July	July	July
Wheat	1000 centals	...	...	119	159
Rye	» »	...	...	90	128
Barley	» »	...	...	128	170
Oats	» »	...	...	196	179
Butter	1000 lb.	...	...	12 209	10.461
Cheese	» »	...	...	4,769	5,384
DENMARK					
Wheat	1000 centals	0	0	657	631
Rye	» »	0	0	430	304
Wheat flour . . .	» »	2	2	24	42
Barley	» »	2	0	0	139
Oats	» »	0	0	4	53
Maize	» »	0	0	359	1,459
Rice	» »	0	0	2	2
Linseed	» »	—	—	31	26
Butter	1000 lb.	30,389	27,538	172	2
Cheese	» »	1,713	853	2	0
Cotton	1000 centals	—	—	15	20
Wool	1000 lb.	22	26	364	370
Coffee	» »	0	0	5,622	4,220
Tea	» »	0	0	99	79
Cacao	» »	0	0	1,254	225
FINLAND					
Wheat	1000 centals	0	0	198	150
Rye	» »	0	0	97	152
Wheat flour . . .	» »	0	0	75	77
Oats	» »	0	0	29	0
FINLAND (*cont.*)		July	July	July	July
Maize	1000 centals	0	0	132	88
Linseed	» »	0	0	7	2
Butter	1000 lb.	3,177	1,969	0	0
Cheese	» »	880	425	0	4
Cotton	1000 centals	0	0	20	20
Wool	1000 lb	2	0	476	448
Coffee	» »	0	0	3,697	3,448
Tea	» »	0	0	11	20
Cacao	» »	0	0	7	26
FRANCE					
Wheat	1000 centals	719	1,303	966	1,305
Rye	» »	0	0	4	2
Wheat flour . . .	» »	203	216	84	90
Barley	» »	0	0	498	265
Oats	» »	0	0	53	55
Maize	» »	0	2	851	780
Rice	» »	40	31	2,057	710
Linseed	» »	0	0	509	456
Butter	1000 lb.	2,022	1,138	134	112
Cheese	» »	1,488	1,462	2,531	2,341
Cotton	1000 centals	20	33	487	368
Wool	1000 lb.	6,389	4,892	24,959	44,216
Coffee	» »	0	0	31,628	34,485
Tea	» »	0	2	214	190
Cacao	» »	0	0	8,212	6,920
GRT. BRITAIN AND N. IRELAND					
Wheat	1000 centals	174	106	9,740	9,515
Wheat flour . . .	» »	240	247	679	855
Barley	» »	...	...	1,385	1,089
Oats	» »	2	0	269	489
Maize	» »	152	269	5,282	6,821
Rice	» »	...	...	159	254
Linseed	» »	...	...	769	547
Butter	1000 lb.	...	...	104,528	102,850
Cheese	» »	467	414	23,354	23,204
Cotton	1000 centals	139	53	1,358	765
Wool	1000 lb.	28,980	21,301	42,942	57,883
Coffee	» »	1,501	1,810	754	935
Tea	» »	6,431	5,130	31,043	33,550
Cacao	» »	1,814	377	5,276	3,514
HUNGARY					
Wheat	1000 centals	1,579	214	0	0
Rye	» »	22	7	0	0
Wheat flour . . .	» »	146	26	0	0
Barley	1000 centals	13	0	0	0
Oats	» »	7	0	0	0
Maize	» »	0	0	239	419
Rice	» »	0	0	33	22
Cotton	» »	0	0	53	42
Coffee	1000 lb.	0	0	280	251
Cacao	» »	0	0	593	525

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
		July	July	July	July
NETHERLANDS					
Wheat	1000 centals	6	46	955	875
Rye	» »	0	0	245	207
Wheat flour	» »	0	0	150	90
Barley	» »	0	0	545	401
Oats	» »	0	0	68	86
Maize	» »	0	0	1,612	1,579
Rice	» »	198	148	214	163
Linseed	» »	2	0	410	251
Butter	1000 lb.	14,529	9,301	2	9
Cheese	» »	11,539	11,590	66	60
Cotton	1000 centals	0	0	86	55
Wool (a)	1000 lb.	450	141	899	461
Wool (b)	» »	44	86	461	794
Coffee	» »	20	518	1,272	5,126
Tea	» »	11	7	2,000	2,438
Cacao	» »	280	172	7,487	9,460
POLAND					
Wheat	1000 centals	60	606	0	0
Rye	» »	276	284	0	0
Wheat flour	» »	157	161	0	0
Barley	» »	295	278	0	0
Oats	» »	170	55	0	0
Maize	» »	0	0	0	0
Rice	» »	29	24	13	218
Linseed	» »	2	0	0	0
Butter	1000 lb	4,259	1,781	0	0
Cheese	» »	18	33	20	22
Cotton	1000 centals	0	0	128	141
Wool	1000 lb.	11	13	2,017	3,567
Coffee	» »	0	0	1,415	963
Tea	» »	0	0	163	282
Cacao	» »	0	0	798	1,254
SIAM					
Rice	1000 centals	2,542	1,867	—	—
SWITZERLAND					
Wheat	1000 centals	0	0	985	1,155
Rye	» »	0	0	31	9
Barley	» »	0	0	60	165
SWITZERLAND (*cont.*)					
Oats	» »	0	0	340	271
Maize	» »	0	0	119	130
Rice	» »	0	0	31	44
Butter	1000 lb.	0	0	20	15
Cheese	» »	3,858	4,279	247	209
Cotton	1000 centals	0	0	40	33
Wool	1000 lb.	24	7	864	2,110
Coffee	» »	0	0	3,309	6,845
Tea	» »	—	—	104	192
Cacao	» »	—	—	818	2,577
SWEDEN					
Wheat	1000 centals	293	461	84	53
Rye	» »	15	51	0	0
Wheat flour	» »	4	0	0	0
Oats	» »	2	0	11	2
Maize	» »	0	0	141	190
Rice	» »	—	—	40	4
Linseed	» »	—	—	75	64
Butter	1000 lb.	44	49	0	0
Cheese	» »	—	—	161	62
Cotton	1000 centals	—	—	55	55
Wool	1000 lb	—	—	1,550	1,008
Coffee	» »	0	0	8,457	8,139
Tea	» »	0	0	51	49
Cacao	» »	0	0	968	1,102
CZECHOSLOVAKIA					
Wheat	1000 centals	0	0	0	148
Rye	» »	0	0	2	0
Wheat flour	» »	0	0	4	2
Barley	» »	24	31	0	0
Oats	» »	0	22	0	0
Maize	» »	0	0	302	240
Rice	» »	0	0	157	115
Linseed	» »	0	0	55	11
Butter	1000 lb	0	0	26	201
Cheese	» »	77	110	201	302
Cotton	1000 centals	2	7	134	117
Wool	1000 lb	62	77	3,816	1,603
Coffee	» »	0	0	1,642	1,510
Tea	» »	0	0	40	46
Cacao	» »	0	0	1,316	1,499

a) Wool, greasy — *b*) Wool, scoured.

STOCKS OF CEREALS

Total stocks of home-grown cereals and linseed in Canada.

Products	Last day of month				
	July 1936	March 1936	July 1935	July 1934	July 1933
	1,000 centals				
Wheat	65,248	147,614	121,964	116,394	127,044
Rye	1,798	3,908	1,757	2,251	3,256
Barley	4,750	15,096	2,669	5,324	5,442
Oats	13,752	52,878	9,000	10,561	14,295
Linseed	151	389	175	264	661

Stocks of cereals and linseed in farmers' hands in Canada.

Products	Last day of month					Last day of month				
	July 1936	March 1936	July 1935	July 1934	July 1933	July 1936	March 1936	July 1935	July 1934	July 1933
	% Stocks total production					Stocks in 1,000 centals				
Wheat	2	17	3	3	3	3,312	27,670	4,717	5,240	7,404
Rye	3	23	1	1	2	152	1,220	44	21	87
Barley	5	26	3	2	4	2,016	10,536	971	883	1,489
Oats 1)	8	36	6	5	7	10,603	48,336	6,824	6,573	9,418
Linseed	0,5	16	0,4	0,2	1	4	135	2	2	10

Total stocks of wheat in different locations in Canada.

Location 1)	Last day of month				
	July 1936	March 1936	July 1935	July 1934	July 1933
	1,000 centals				
On farms	3,312	27,670	4,717	5,240	7,404
In country and interior terminal elevators, Western division	18,810	44,713	29,007	39,091	44,310
In terminal elevators Lake Superior 2)	15,291	26,570	42,870	35,633	36,817
In elevators Pacific Coast 3)	5,242	7,528	5,327	5,751	5,613
In elevators Hudson Bay 4)	1,487	1,369	1,434	1,486	1,458
In Eastern elevators	13,421	30,169	25,659	18,953	20,503
In flour mills	4,718	5,617	5,186	5,606	5,524
In transit	2,967	3,978	7,764	4,635	5,415
Total Canadian wheat as grain	*65,248*	*147,614*	*121,964*	*116,394*	*127,044*
U. S. grain in store in Canada	0	0	0	0	2,244
TOTAL WHEAT AS GRAIN IN CANADA.	**65,248**	**147,614**	**121,964**	**116,394**	**129,288**

---

1) Quantities afloat for unloading at Canadian ports are included in stocks in terminal elevators Lake Superior or in Eastern elevators. — 2) Fort William and Port Arthur. — 3) Vancouver, New Westminster, Victoria, Prince Rupert. — 4) Port Churchill.

Total stocks of wheat in the United States 1).

LOCATION	First day of month				
	July 1936	April 1936	July 1935	July 1934	July 1933
	1,000 centals				
On farms	26,256	58,232	26,603	36,194	49,385
In interior mills and elevators	14,266	31,295	19,079	28,890	38,578
Commercial wheat in store	13,897	31,167	13,171	48,329	74,227
In merchant mills and attached elevators 2)	25,327	39,546	27,511	45,393	58,166
In transit to merchant mills and bought to arrive 2)	8,215	4,728	4,285	8,440	9,623
Stored for others by merchant mills 2)	3,807	1,951	2,172	4,475	6,065
Total U. S. wheat as grain	*91,768*	*166,919*	*92,821*	*171,721*	*236,044*
Flour (in terms of grain) in merchant mills 2)	12,369	11,778	11,035	11,920	8,838
Total U. S. wheat	*104,137*	*178,697*	*103,856*	*183,641*	*244,882*
Canadian wheat in store in bond in the U. S.	9,368	10,219	5,567	6,073	2,602
Wheat of other origin in store in bond in the U. S.	0	0	867	0	0
TOTAL WHEAT IN THE U. S.	**113,505**	**188,916**	**110,290**	**189,714**	**247,484**

1) Incomplete data: wheat in transit on rail or water with other destination than to merchant mills and attached elevators and wheat flour in other positions than in these mills, etc., are not included. — 2) The figures of the Bureau of Census, partial quarterly census are raised to represent all mills.

Wheat and wheat-flour stocks held by commercial mills in the United States 1)

LOCATION	Last day of month				
	June 1936	March 1936	June 1935	June 1934	June 1933
	1,000 centals				
Wheat stocks the property of commercial millers:					
Wheat in transit to merchant mills and bought to arrive	7,969	4,605	3,985	7,815	9,046
Wheat held by mills and mill-elevators attached to mills	24,567	38,518	25,585	42,034	54,676
Wheat in other positions 2)	5,049	8,535	5,650	11,932	15,391
Total	*37,585*	*51,658*	*35,220*	*61,781*	*79,113*
Wheat-flour in mills and warehouses, and in transit, sold and unsold	8,340	7,973	7,132	7,672	5,866
Wheat stored for others in mills and mill-elevators	3,693	1,900	2,020	4,144	5,701
GRAND TOTAL 3)	**53,277**	**65,030**	**47,502**	**76,963**	**93,254**

1) Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills — 2) These stocks are included in the total quantities in country elevators or in the total quantities in public terminal elevators and private terminal elevators not attached to mills — 3) Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	August 1936	July 1936	June 1936	August 1935	August 1934
	Friday or Saturday nearest 1st of month				
	1,000 centals				
WHEAT:					
Canadian in Canada	59,696	72,143	89,200	112,073	106,573
U. S. in Canada	0	0	0	0	0
U. S. in the United States	40,383	13,897	18,704	20,843	69,553
Canadian in the United States	11,470	9,368	8,029	6,304	5,836
Of other origin in the United States	0	0	0	469	0
Total	*111,549*	*95,408*	*115,933*	*139,689*	*181,962*
RYE:					
Canadian in Canada	1,595	1,834	2,135	1,636	2,131
U. S. in Canada	0	0	0	0	0
U. S. in the United States	3,405	3,769	3,847	3,868	6,747
Canadian in the United States	193	169	127	16	30
Of other origin in the United States	0	0	0	1,777	326
Total	*5,193*	*5,772*	*6,109*	*7,297*	*9,234*
BARLEY:					
Canadian in Canada	2,499	2,770	3,406	1,632	4,344
U. S. in Canada	0	0	24	0	0
U. S. in the United States	4,728	5,074	5,675	2,512	4,774
Canadian in the United States	187	0	0	220	0
Of other origin in the United States	0	0	0	172	0
Total	*7,414*	*7,844*	*9,105*	*4,536*	*9,118*
OATS:					
Canadian in Canada	2,708	2,457	2,929	2,051	3,535
U. S. in Canada	0	73	9	0	82
U. S. in the United States	12,436	9,939	9,934	2,408	7,274
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total	*15,144*	*12,469*	*12,872*	*4,459*	*10,891*
MAIZE:					
U. S. in Canada	108	40	249	233	1,692
Of other origin in Canada	457	463	562	1,401	245
U. S. in the United States	2,417	3,912	3,448	3,149	25,482
Of other origin in the United States	0	0	0	873	0
Total	*2,982*	*4,415*	*4,259*	*5,656*	*27,419*

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	August 1936	July 1936	June 1936	August 1935	August 1934
	Saturday nearest 1st of month				
	1,000 centals				
Wheat (and flour in terms of grain)	12,355	16,032	19,056	10,142	20,861
Rye	336	514	749	254	336
Barley	1,564	1,416	2,276	1,420	1,752
Oats	592	560	493	358	1,222
Maize	14,654	12,499	13,339	14,549	15,998

AUTHORITY: *Broomhall's Corn Trade News.*

Stocks of cereals and potatoes belonging to farmers in Germany.

PRODUCTS	% stocks total production				Stocks in 1,000 centals			
	31 July 1936	30 June 1936	31 July 1935	31 July 1934	31 July 1936	30 June 1936	31 July 1935	31 July 1934
Winter wheat	...	3	1	2	...	2,800	900	2,200
Spring wheat	..	2	1	1	...	200	100	200
Rye	...	5	2	2	...	8,200	3,400	3,800
Winter barley	...	3	1	1	...	700	200	200
Spring barley	...	3	2	1	...	1,600	1,100	600
Oats	...	10	7	7	...	11,900	8,400	10,700
Late potatoes	...	4	2	0.6	...	35,000	19,600	5,400

AUTHORITY: *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A)

Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	July 1936	June 1936	May 1936	July 1935	July 1934
	1,000 centals				
WHEAT:					
Grain	12,064	28,578	23,605	23,396	25,279
Flour for bread	1,814	2,496	2,674	2,884	2,471
TOTAL 1)	*14,584*	*22,044*	*27,320*	*27,402*	*29,212*
RYE:					
Grain	7,403	10,858	15,432	21,429	15,878
Flour for bread	529	902	1,168	1,528	1,288
TOTAL 1)	*8,178*	*12,183*	*17,149*	*23,676*	*17,772*
BARLEY	2,344	840	1,700	2,767	1,938
OATS	2,262	3,075	3,512	2,235	522

1) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat. 1,000 centals of rye-flour = 1,470.59 centals of rye.

Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1,000 centals				
WHEAT:					
Grain	4,632	5,400	5,160	4,656	7,248
Flour as grain	768	744	792	624	888
TOTAL	*5,400*	*6,144*	*5,952*	*5,280*	*8,136*
BARLEY	1,000	1,160	1,200	580	920
OATS	176	240	208	330	298
MAIZE	2,328	3,072	2,688	2,256	2,496

1) Imported cereals
AUTHORITY: *Broomhall's Corn Trade News.*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1,000 centals				
WHEAT:					
Antwerp	496	494	1,003	449	1,107
Rotterdam	530	348	121	238	1,066
Amsterdam	28	44	34	0	29
RYE.					
Antwerp	28	15	13	61	1
Rotterdam	39	8	7	143	198
Amsterdam	0	0	0	0	2
BARLEY					
Antwerp	40	102	124	250	75
Rotterdam	22	55	3	9	77
Amsterdam	0	0	0	13	28
OATS					
Antwerp	44	55	47	71	44
Rotterdam	12	12	0	44	46
Amsterdam	32	34	35	22	27
MAIZE					
Antwerp	20	26	63	36	44
Rotterdam	14	17	35	159	7
Amsterdam	2	3	19	26	3

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	July 1936	June 1936	May 1936	July 1935	July 1934
	1,000 centals				
In consuming establishments	4,383	4,818	5,321	3,838	6,045
In public storage and at compresses	18,921	22,105	25,580	27,930	27,440
TOTAL	*23,304*	*26,923*	*30,901*	*31,768*	*33,485*

Carry-over of cotton in the United-States.

Total stocks of cotton as on 31 July include, besides the monthly information on stocks in consuming establishments and in public storage and at compresses, also stocks in other positions, namely: cotton for export on shipboard but not cleared; cotton coastwise; cotton in transit to ports, interior towns, and mills; cotton on farms and in private storage. These stocks in other positions amounted to 3,053,000 centals in 1936 against 3,310,000 centals in 1935 and 4,684,000 centals in 1934, making total stocks of 26,357,000; 35,078,000 and 38,170,000 centals in the three years mentioned.

Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1,000 centals				
Bombay 1)	3,116	3,164	3,436	2,404	3,788
Alexandria 2)	613	979	1,549	541	1,370

1) Stocks held by exporters, dealers and mills. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Minet-el-Bassal.*

Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1,000 centals				
Great Britain:					
American	1,391	1,411	1,384	847	1,714
Argentine, Brazilian, etc.	599	409	390	221	626
Peruvian, etc.	165	126	119	309	354
Eat Indian.	354	341	381	213	372
Egiptian, Sudanese	852	973	962	982	1,465
W. Indian, W and E. African, etc	163	167	145	156	278
TOTAL	*3,524*	*3,427*	*3,381*	*2,728*	*4,809*
Bremen:					
American	550	669	783	566	1,772
Other	282	309	221	304	225
TOTAL	*832*	*978*	*1,004*	*870*	*1,997*
Le Havre:					
American	468	555	615	321	705
French colonies.	20	17	17	14	47
Other	183	138	114	89	83
TOTAL	*671*	*710*	*746*	*424*	*835*
***Total Continent* 1):**					
American	1,410	1,735	1,863	1,293	2,964
Argentine, Brazilian, etc	283	256	144	214	107
East Indian	237	220	214	237	218
Egyptian	169	222	227	203	95
W Indian, W. and E African, etc	168	158	122	129	210
TOTAL	*2,267*	*2,591*	*2,570*	*2,076*	*3,594*

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

REGULATION OF CEREAL PRICES

GERMANY. — The bases for the cereal market for the commercial year 1936-37 have been established by an Order of the Minister of Food and Agriculture, dated 10 July 1936, and by a Decree of the Central Cereal Federation, dated 11 July 1936. The system of fixed prices remains unchanged. For the year 1936-37, rye and barley prices come into force on 16 July, and wheat and oat prices on 16 August. Wheat, rye and barley prices are Rm. 2.00 per ql. lower than those of the 1935 crop, which had been in force up to the dates mentioned above. From September to June inclusive, prices will be increased monthly by Rm. 0.20 per ql. New oat prices will be Rm. 1.80 lower than the preceding prices, and will be increased each month from October to June by Rm. 0.20 per ql.

ITALY. — The basic price of good quality soft wheat of 78 kg. hectolitre weight has been fixed for the new harvest. This price was initially fixed at Lire 108 per ql. in producers' hands, and before being augmented by Lire 1 00 per month beginning 1st July 1936. From 13 August this price was increased to Lire 118. The monthly increments have been discontinued. The basic price for hard wheat was initially fixed at Lire 118 per ql., with a monthly increment of Lire 1.20. The latter was subsequently abolished, the price for the whole year being fixed at Lire 133.

All these prices must be increased by Lire 5 for diverse expenses up to arrival at the mill.

CZECHOSLOVAKIA. — Cereal prices are fixed on the basis of Governmental Decrees. Only the «Czechoslovakian Cereal Organisation» has the right of buying and selling. For the year 1936-37, prices of brewing barley of hectolitre weight of at least 68 kg. are as follows (c. i. f. Prague): purchase price Kč. 125 per ql., and sale price Kč. 134 per ql. Purchase prices are increased by monthly increments of Kč. 1.50 between September 1936 and June 1937, to achieve a final price of Kč. 140. The Organisation's selling prices are not increased. On the other hand the farmer pays to the Organisation a tax on each quintal of grain bought from him, amounting in the case of barley to Kč. 11 per ql.

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

DESCRIPTION	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	AVERAGE July 1936	AVERAGE August 1935	AVERAGE August 1934	Commercial Season 1) 1935-36	Commercial Season 1) 1934-35
Wheat.										
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	15.22	15.05	15.00	15.07	14.92	15.18	15.49	* 16.27	16.78	16.67
Braila: Good quality (lei p. quintal)	6) 440	6) 440	6) 435	6) 415	6) 415	6) 416	6) 396	n. q.	* 460	* 402
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	102 1/2	106	103 3/8	93 5/8	94 3/4	95	85	85 3/4	85	81 7/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	120 1/2	121	119 1/4	110 1/4	112 5/8	112 1/8	103 1/8	n. 109 3/8	109 3/4	104 1/4
Minneapolis: No. 1 Northern (cents p. 60 lb.)	134 1/8	137 3/8	131 3/4	125 1/8	126 5/8	127 3/8	* 121	116 1/2	119 1/2	110 7/8
New York: No. 2 Hard Winter (cents p. 60 lb.)	125	125 3/8	129 3/8	122 1/2	123 7/8	125 7/8	114 5/8	114	124 1/4	113 1/8
Buenos Aires (*a*): Barletta, 80 kg. p. hectol. (paper pesos p. quintal)	12.10	12.40	11.90	11.15	10.80	10.89	7.32	7.96	9.53	6.86
Karachi: White Karachi 2% barley, 1½% impurities (rupees p. 656 lb.)	28-11-0	30-3-0	27-2-0	26-3-0	26-2-0	25-15-0	22-5-10	22-6-7	24-7-6	22-5-9
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 2)	21.40	21.40	21.40	21.40	21,40	21.40	19.96	19.50	20.53	20.29
Hamburg (c. i. f.; Rm. p. quintal):										
No. 1 Manitoba	11.45	11.80	10.99	10.22	10.35	10.20	* 9.25	9 52	9.51	8.95
Barusso (80 kg. p. hl.)	10.95	11.08	10.23	9.71	9.46	9.57	6.99	7.68	8 74	6.50
Antwerp (francs p. quintal):										
Home-grown	134.00	119 00	117.00	117.00	115.00	114.40	79.60	70.90	100.90	69.10
No. 1 Manitoba (Atlantic) (in bond)	130.00	129.00	118.50	120.00	116.00	114 60	107.80	82 90	100.80	86.10
Barusso (in bond)	125.00	123.00	115.00	115.50	111.00	110.50	85.50	60 65	103.10	60.90
Paris: Home-grown (delivery regional depots; 76 kg. p. hl.; frs. p. quintal) 3)	7) 111.00	111.35	109.25	106.50	104.00	105.40	6) 71 60	6) 111.00	89.95	91.50
London (Mark Lane): Home-grown (sh. p 504 lb. on the farm)	n. q.	36/6	35/6	34/3	33/3	33/-	19/10 3/4	22/3	27/5 1/4	22/4 1/8
Liverpool and London (c.i.f., parcels, shipping current month; sh. p. 480 lb.)										
French (on sample)	n. q.	n. q.	n. q.	29/9	29/6	* 28/5	19/1 3/4	n. q.	* 25/-	* 19/8
South Russian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	6) 25/7 3/4	n. q.	* 29/-	n. q.
No. 1 Northern Manitoba (Atlantic)	8) 38/3	8) 40/-	8) 37/4 1/2	8) 34/10 1/2	34/8 1/4	34/7 1/4	31/7 1/4	33/1 1/2	32/9	31/7 3/4
No. 1 Northern Manitoba (Pacific)	38/9	40/3	37/3	35/1 1/2	34/4 1/2	34/4 3/4	30/11 1/2	33/4 3/4	32/5 1/4	31/2 3/4
No. 3 Northern Manitoba (Pacific)	37/3	38/10 1/2	36/1 1/2	33/9 3/4	33/3 3/4	* 33/10 3/4	28/2 1/2	30/9	30/5 1/4	28/5 1/4
White Pacific	9) 36/9	9) 37/3	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n q.
Rosafé (afloat) 4)	10) 34/6	10) 34/6	n. q.	n. q.	n. q.	n. q.	25/3	25/7 1/4	* 28/9	22/3 1/2
West Australian (cargoes)	11) 39/-	11) 40/1 1/2	36/10 1/2	n. q.	n. q.	n. q.	27/4	29/9 1/2	* 30/2 1/2	26/3 3/4
New South Wales (cargoes)	38/4 1/2	39/6	36/6	n. q.	n. q.	n. q.	26/5 1/2	* 29/9 3/4	* 29/9	* 25/7
Milan (*b*): Home-grown, soft, "Buono mercantile" 76-78 kg. p. hl. (lire p. q.) 5)	6) 123 00	6) 123.00	6) 114.00	12) 120.00	119.50	119.60	6) 103.40	6) 83 25	114.20	95.80
Genoa: Sicilian Durum (c.i.f.; lire p quint.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	102.95	n. q.	* 113.05
Genoa (c.i.f.; U. S. $ p. quintal):										
No. 2 Manitoba (Pacific)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	3 67	n. q.	* 3.38
No. 2 Canadian Durum 1	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	4 06	n. q.	* 4.09
Bahia Blanca, 79 kg. p hl. (sh. p. 1000 kg.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	125/4	n. q.	* 111/-
Rye.										
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 2)	6) 15.70	6) 15.70	6) 15.70	6) 15.70	6) 15.70	16.50	6) 15.70	15.50	16.68	16.29
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg p hl.	6.38	6.34	5.83	5.91	5.57	5.64	4.38	7.43	5.27	5.76
Budapest: Pest rye (pengő p. quintal)	12.60	12.22	12.10	11.25	10.45	11.49	6) 14.19	* 11.59	14.45	12.08
Warsaw: Good quality (zloty p. quintal)	14 15	14.87	13.62	13.62	13 62	13.67	10.77	* 17.15	13.25	14.82
Winnipeg: No. 2 (cents p. 56 lb.)	66 1/2	65 7/8	64 1/4	56 5/8	58 1/2	58 5/8	36 7/8	68 1/4	43 1/4	52 7/8
Minneapolis: No. 2 (cents p. 56 lb.)	80 1/2	81 1/4	81 3/8	74	74 1/2	75 1/2	45 3/4	87 3/4	53 1/2	67 7/8
Groningen (*c*): Home-grown (fl. p. quintal)	7.62	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.37	7.93	* 7.08	7.35

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal* — *a*) Thursday prices. — *b*) Saturday prices. — *c*) Prices on preceding Tuesday.

1) August-July. — 2) From 16 Aug. 1934, for wheat, and. July 1934, for rye, fixed producers' prices for the *price region* of Berlin city. See *Govt. Measures*, No. 2, p. 57 and, for 1936 harvest, p. 609 of this *Crop Report*. — 3) Until 25 Dec. 1934, minimum prices on the farm increased by transport costs, then spot quotations in the free market until 31 Aug. 1935, subsequently prices in the regulated market, delivery current month. — 4) Aug.-Dec. 1934, 64 lb. p. bushel, then 63½ lb. and, on and from Aug. 1936, 63 lb. — 5) See note p. 609 — 6) New crop. — 7) Price on preceding day. — 8) For cargoes via Churchill, shipping current or next month; 14 Aug.: 38/–; 7 Aug.: 39/7½; 31 July: 37/4½; 24 July: 34/6. — 9) Shipping Sept.-Oct. — 10) Shipping Jan.-Feb. — 11) Shipping Sept. — 12) New wheat: 114.00.

DESCRIPTION	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	AVERAGE				
						July 1936	August 1935	August 1934	Commercial Season 1)	
									1935-36	1934-35
Barley.										
Warsaw: Malting, good quality (zloty p. quintal)	5) 19.00	n. q.	n. q.	15.87	15.87	* 15.87	n. q.	21.45	* 15.97	19.60
Braila: Average quality (lei p. quintal)	5) 235	5) 230	5) 232	5) 224	5) 218	5) 216	5) 204	5) 277	* 237	* 244
Prague: Malting, av. qual. (crs. p. quintal) 2)	5) 125.00	5) 125.00	6) 144.50	6) 144.50	6) 144.50	6) 144.50	5) 125.00	5) 125.00	* 131.70	131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	61 1/2	58	53 3/4	47 5/8	49 1/4	48 5/8	30 1/4	55 5/8	34 3/4	45 3/8
Chicago: Feeding (on sample; cents p. 48 lb.)	58	60	55	58	60	55 3/4	40 3/4	77	45 1/4	72 1/2
Minneapolis: No. 2 Feeding (c. p. 48 lb.)	77	74	66	56	61	59	38 5/8	71 1/2	39 1/2	67 1/2
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3)	5) 16.00	5) 16.00	5) 16.00	5) 16.00	5) 16.00	16.80	5) 16.00	15.40	16.98	16.16
Antwerp: Danubian (in bond; francs p. q.)	90.00	88.00	84.00	83.50	82.00	80.30	71.80	72.80	74.10	69.45
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	n. q.	n. q.	n. q.	n. q.	n. q.	*30/-	5)* 41/6	5)* 44/2	38/3	38/-
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):										
Danubian, 3 % impurities	19/6	19/9	7) 18/6	7) 18/3	7) 17/7 1/2	7) 17/1 3/4	* 14/-	22/4	* 15/3	* 19/2 1/4
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/9 1/2	n. q.	* 14/10	n. q.
Canadian No. 3 Western	27/-	25/9	24/-	22/3 3/4	22/6	21/10	15/10 3/4	24/6	18/0 1/2	21/10 1/2
Californian malting (sh. p. 448 lb.)	37 -	34/-	32/6	31/3	30/6	29/5 1/2	21/3 1/2	8) 32/6 1/2	24/8 3/4	* 31/6
Plata (64-65 kg p hl)	9) 20/-	9) 20/6	9) 19/-	9) 18/1 1/2	9) 17/10 1/2	17/9 1/4	14/2 1/2	22/10 3/4	15/11 1/2	18/4
Persian (Iraquian)	10) 19/-	10) 19/7 1/2	7) 18 9	7) 18/-	17/4 1/2	17/1 1/2	* 13/11	22/1 1/2	15/4 1/4	18/6
Groningen a): Home-grown, winter (fl. p. q.)	5) 5.45	5.90	5.67	5.67	5.60	* 5.65	5) * 4.01	5) 5.32	4.91	5.30
Oats.										
Braila: Good quality (lei p. quintal)	5) 235	5) 225	n. q.	n. q.	n. q.	n. q.	5) * 270	n. q.	* 294	n. q.
Winnipeg: No. 2 White (cents per 34 lb.)	50 5/8	49 1/8	47 3/4	43 7/8	44	42	36 3/8	43 5/8	34 3/4	42 3/4
Chicago: No. 2 White (cents per 32 lb.)	45 1/2	45 1/8	44 3/8	38 5/8	40 3/8	40	32 1/2	52 5/8	32 1/4	50 7/8
Buenos Aires b): Current quality (paper pesos p quintal)	6.25	6 55	6.55	6 40	6 30	6 25	5.79	5 89	* 6.38	5.39
Berlin: Home-grown (free at Brandenburg stations; Rm p quint.) 3)	17.60	17.60	17.60	17.60	17.60	17.60	16 90	15.60	16.79	16,39
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal)	11) 91,75	89.60	91.90	89.10	81 85	85.10	40.80	55.55	66.40	48.50
London (Mark Lane). Home-grown white (sh. p. 336 lb., on farm)	21/6	20/6	20/6	20/6	20 6	19/10 1/2	5) 18/-	19/3 1/2	18/7 1/2	20/10
Liverpool and London (c.i.f, parcels; shipping current month; sh. p. 320 lb.):										
Canadian, No 2 Western (Pacific) 4)	24/7 1/2	24/4 1/2	23/6	22/-	20/10 1/2	20/10 1/2	19/3	22 -	18/7 1/2	20/10 1/2
Plata (f. a. q.)	15/6	15/6	14 7 1/2	14/3	14/-	14/-	* 13/10	14/4 1/2	14/5	13/0 1/2
Milan (c) (lire p. quintal):										
Home-grown	12) 88 00	87.00	84.50	86 50	n. q	n. q.	* 88.35	54.00	* 97.10	61.25
Foreign	12) 91 00	91 00	91.00	91.00	91.00	91.00	75.00	55 00	92.60	60.45
Maize.										
Braila: Average quality (lei p. quintal)	280	280	270	250	248	251	287	264	238 1/2	220
Chicago: No. 3 Yellow (cents p. 56 lb.)	112 3/4	111	105 1/2	93 1/4	94	90 1/2	82 1/4	77 1/4	72 5/8	78 1/2
Buenos Aires (b): Yellow Plata (paper pesos p. quintal)	6.15	6.07	5.65	5.67	5.45	5.39	4.40	7.06	4.51	5.72
Antwerp (in bond; francs p. quintal):										
Yellow Plata	81.50	78.50	76 75	76.00	73.50	71.85	53.70	58.90	56.25	53.70
Cinquantino (Argentine "Cuarentino")	84.00	83.00	81.00	81.00	79.00	76.90	55.50	61.50	60.45	58.25
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):										
Danubian	n. q.	n. q.	n. q.	n. q.	20/6	* 19/6 1/2	n. q.	24/6	* 16/11	* 20/-
Yellow Plata	23/3	21/7 1/2	21/9	20/9	19/10 1/2	20/-	14/11	23/10 1/2	16/0 1/2	19/8 3/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	16/-	n. q.	* 17/-	21/4 1/2
Milan (c): « Alto Milanese » (lire p. quint.)	12) 91.50	91.50	91.50	90.50	89.50	89.00	81.50	63.50	81.75	58.50

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. (From August 1935, barley of good quality, not less than 68 kg. per hl.) see note p. 609. — 3) From 16 July 1934 for fodder barley, and from 1 August 193 for oats, fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, N° 2, p. 57, and, for the 1936 harvest, p. 609 of this *Crop Report*. — 4) Aug.-Dec. 1934 and from May 1935, Atlantic. — 5) New crop. — 6) Selling price; see note p. 609. — 7) Shipping Aug.-Sept.. — 8) Shipping Sept.-Oct. — 9) 61-63 kg. p. hl., shipping Sept. — 10) Shipping Sept. — 11) Price on 13 Aug. — 12) Price on 12 August.

DESCRIPTION	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	Average July 1936	Average August 1935	Average August 1934	Average Commercial Season 1) 1935	Average Commercial Season 1) 1934
Rice (milled).										
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q	n. q.	n. q.	n. q.	59.00	* 58.67	58.50	45.70	56.60	46.95
Milan (*b*) (lire p. quintal):										
Vialone, oiled	173.50	173.50	176.00	176.00	176.00	176.00	150.30	165 00	159.20	177.10
Maratelli, oiled	159.50	159.50	160.00	160.00	160 00	159 50	131.10	123.00	136.60	138.05
Originario, white	125 00	125.00	125.00	125.00	125 00	125 00	129.10	101 35	121.75	102.80
Rangoon: No. 2 Burma (rupees p. 7500 lb.)	255	252½	245	245	240	241½	248	246	253½	201⅞
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white, 25 % brokens	...	...	5.12	4.81	4 76	3) 4.75	4.14	3.85	4.18	3.25
No. 2 Japan, 40 % brokens	...	...	4 84	4.56	4 51	4) 4.50	3.82	3.67	3.96	3.09
Marseilles (*a*): No. 1 Saigon (c. i. f., frs. p. quintal)	74 00	65 00	64.00	62 00	62 00	61.10	* 58.00	49 80	54.80	45.95
London (*a*) (c. i f ; shillings p. cwt.)										
No. 3 Spanish Belloch, oiled	n. q.	n. q.	n. q.	n. q.	11/4½	11/5	13/-	9/9	* 12/7	*10/9
No. 6 Italian good, oiled	n. q.	n. q.	n q.	n. q.	n q.	n. q	n. q.	10/9¼	* 14/0½	11/10¼
American Blue Rose, extra fancy	n q.	n. q.	n. q.	n. q.	n q.	n. q.	n. q	17/5½	* 15/5¾	17/3½
No. 2 Rangoon or Bassein (Burma)	8/-	7 10½	5) 7/9	5) 7/7½	5) 7/6	7/6¾	7/5½	7/11	7/8	6/7¾
No. 1 Saigon	9/-	9/-	5) 8/9	5) 8/3	5) 8 -	8/1½	7/3¾	7/2	7/5¼	6/3¼
Siam Super, white	9/3	9/1½	5) 8/7½	5) 8/6	5) 8 6	8/6½	9/3¾	8 6	9/2¾	7/5
Tokyo: Chumai (brown Japanese, average quality, yen p. koku)	32 50	32 30	31 90	31 80	31.70	31 90	30.34	27 56	29.87	26.09
Linseed.										
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	15 90	16 30	15 65	15 20	15.25	15 12	12.05	14 37	12 28	12.74
Bombay: Bold (rupees p cwt)	8 12 0	8-15-0	8-5-0	8- 3-0	8- 7-0	7-15-10	6-8-2	7-0-7	6-10-8	6-7-8
Antwerp: Plata (in bond, frs. p quint.)	179 00	174 00	168 00	168.00	167.00	165 40	137 10	119 10	127.55	107.60
London (c. i. f, £ p. long ton):										
Plata (delivery Hull)	12-10-6	12-11-3	12- 5-0	11-15-0	11-16-3	11-15-0	9- 7-9	11- 3-0	9-13-2	10- 0-8
Bombay Bold	15-15-0	16- 0-0	14-15-0	14- 5-0	n 14-7-6	14- 1-0	11-15-0	12-16-9	12- 5- 5	11-17-0
Duluth: No. 1 Northern (futures market quotations; cents p. 56 lb)	6) 210	6) 215	205	n 203½	209½	202⅝	6) 156⅞	6) 196⅝	172¼	186⅛
Cottonseed.									1934-35	1933-34
Alexandria (piastres p. ardeb):										
Upper Egypt	7) 84 1	n. q.	n q	n q.	n. 87 0	*n 84 1	62 5	*n 48 7	62.0	41.8
Sakellaridis	n q.	n. q.	n q.	n q.	n. 81 0	n. 78.1	58 5	*n 45 4	57.7	* 37.5
London: Sakellaridis (c i.f., delivery Hull, £ p. long ton)	n. 9-0 0	n. 8-10-0	n. 8-10-0	n 8- 0-0	n 7-15-0	n. 7-17-0	n. 6-1-9	5-1-6	5-18-7	4-5-11
Cotton.									1935-36	1934-35
New Orleans: Middling (cents p lb)	12 19	12 50	12 64	12 90	12 93	12 89	11 33	13 29	11.64	12.47
New York: Middling (cents p. lb.)	12 41	12 67	12 85	13 16	13 23	13 08	11 43	13 40	11.74	12.46
Bombay (rupees p 784 lb.).										
Broach, f. g. (futures-market quotations)	204¾	226¼	227¼	229	235¾	231	* 226	225¾	210¼	230¼
Broach, f g (spot)	226	228	230	232	237	231½	226	224½	* 220¾	233¼
Oomra, fine (spot)	n. q	205	206	207	214	211½	198⅛	200¾	198¾	208⅛
Alexandria (talaris p. kantar):										
Sakellaridis, f g. f.	17 75	18.70	18 80	18 35	18 30	18 20	14 46	15.62	16.11	15.20
Ashmuni-Zagora, f. g. f. 2)	13 85	14 25	14 65	15 10	15 00	14.91	13 02	13 35	13 61	13.34
Bremen: Middling (U. S cents p. lb)	14 92	14 97	15.18	15.37	15.55	15 28	13 56	15.28	13.88	14.38
M. g. Broach, f g (pence p lb)	n. 5.70	n. 5 70	n. 5.80	n 5 80	n 5 90	n 5.85	n 5.97	n 5 60	n. 5 86	n. 6.04
Le Havre: Middling (Gulf, frs p. 50 kg.)	257 90	254 50	254.50	255.00	251 50	251 00	234.30	261.80	240 00	250.75
Liverpool (pence per lb.):										
Middling, fair	n. 8 02	n. 8.12	n. 8.20	n. 8.43	n. 8 57	n. 8 43	n. 7.35	n. 8 22	n. 7 58	n. 7.95
Middling	6.92	7 02	7.10	7 33	7 47	7.33	6.45	7.17	6.53	6 94
São Paulo, g. f.	6.87	6 92	7.10	7 23	7.32	7 26	6 59	7 12	6.81	6.99
Broach, good staple, f g	n. 5 42	n. 5.49	n. 5.57	n. 5.67	n. 5 71	n. 5.74	5.36	5 35	5.43	5.61
C. P. Oomra, superfine	5.65	5.72	5.80	5 90	5 97	5.94	5.48	5.52	5.61	5 73
Egyptian Sakellaridis, f. g. f.	11.01	11.20	11.23	10 94	10 44	10.49	8.06	8.74	9.18	8 52
Upper Egyptian, f. g. f	8.14	8 36	8.95	8 66	8 42	8 54	7.26	7.48	7.49	7.55

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) From August 1935, Ashmuni, f. g. f quality only — 3) 10 July: 4,60; 3 July 4 16 — 4) 10 July: 4.35; 3 July. 4 22. — 5) Shipping Aug.-Sept — 6) September futures — 7) New crop

DESCRIPTION	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	AVERAGE July 1936	August 1935	August 1934	Commercial Season 1935	1934
Bacon.										
London, Provision Exchange (*a*) (shillings, p. cwt.):										
English, N° 1, lean sizable	99/-	99/-	95/-	95/-	91/6	91/8	87/10	94/9	89/11	91/2
Danish, N° 1, sizable	100/-	100/-	96/-	96/-	94/-	93/7	87/10	93/5	88/6	87/11
Irish, N° 1, sizable	99/-	99/6	95/6	95/-	92/-	92/5	86/6	93/9	88/8	90/5
Lithuanian, N° 1, sizable	93/-	93/-	87/-	87/-	85/-	84/7	80/10	89/5	82/1	82/-
Dutch, N° 1, sizable	98/-	98/-	93/-	93/-	90/-	90/-	84/2	89/5	85/4	84/-
Polish, N° 1, sizable	93/-	93/-	87/-	87/-	85/-	84/7	78/10	88/9	80/-	80/11
Swedish, N° 1, sizable	98/-	98/-	93/-	93/-	90/-	90/-	84/2	89/7	85/2	84/4
Canadian, N° 1, sizable	93/-	93/-	87/-	87/-	85/-	84/7	78/10	89/-	79/3	80/3
Butter.										
Copenhagen (*b*) Danish (crs p. quint.)	225.00	223.00	225.00	225.00	225.00	218.60	187.00	177.60	192.30	160.75
Leeuwarden, Commission for butter quotations (*b*) Dutch (cents p kg.) 1)	62	62	60	63	62	5) 59 3/4	46 1/4	43	48 7/8	44 5/8
Germany (*c*) (fixed prices, Rm. p 50 Kg.) 2):										
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130.00	131.00	130.00	129.04
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	123.00	122.00	123.00	120.87
London (*d*) English creamery, finest quality (shillings p cwt.)	137/8	137/8	137/8	137/8	137/8	133/11	121/4	106/3	119/6	109/6
London, Provision Exchange (*a*) (shillings, p cwt.)										
Danish creamery, unsalted	127/6	125/6	125/6	127/6	127/6	124/4	110/1	106/3	112/9	98/8
Estonian, unsalted	n. q.	109/6	110/-	112/-	112/-	108/1	90/9	69/2	* 81/11	* 67/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	69/-	* 86/1	* 69/3
Dutch creamery, unsalted	111/-	109/-	108/-	110/6	110/-	106/8	87/3	76/2	93/4	80/4
Argentine, finest, unsalted	109/-	105/-	105/-	107/-	105/6	105/10	n. q.	n. q.	* 82/10	* 68/3
Siberian salted	110/6	109/-	110/6	111/-	111/-	110/10	87/8	68/2	* 90/7	* 66/-
Australian, finest, salted	117/6	115/6	115/-	116/6	115/-	113/-	93/8	75/-	89/7	70/2
New Zealand, finest, salted	118/6	116/6	116/-	118/-	116/-	114/1	94/8	79/9	91/11	72/7
Cheese.										
Milan (lire p quintal)										
Parmigiano-Reggiano, 1st quality, production 1933 3)	875.00	865.00	860.00	860.00	860.00	860.00	743.00	n. q.	724.30	* 989.00
Parmigiano - Reggiano, 1st quality, production 1934 3)	845.00	835.00	830.00	820.00	815.00	818.00	672.00	740.00	614.60	806.00
Green Gorgonzola, mature, choice	570.00	570.00	570.00	570.00	567.50	567.00	515.00	415.00	508.90	412.60
Rome Roman Pecorino, choice (lire p q)4)	1,162.50	1,162.50	1,162.50	1,162.50	1,187.50	1,177.50	875.00	592.00	865.50	658.65
Alkmaar Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	18.75	18.75	20.00	21.00	18.75	19.35	15.10	21.00	14.84	18.64
Gouda: Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p 50 kg.)	22.00	22.00	22.00	22.00	21.00	21.40	20.00	22.00	19.75	22.52
Kempten (*c*) (Rm. p 50 kg.)										
Soft cheese, green, 20 % butterfat	26.00	26.00	26.00	26.00	26.00	26.00	26.00	22.75	26.00	23.25
Emmenthal from the Allgau, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	77.00	71.00	77.00	71.50
London, Provision Exchange (*a*) (shillings, p cwt.):										
English Cheddar, finest farmers	74/-	72/-	72/-	n. q.	n. q.	n. q.	59/7	75/5	* 77/8	* 83/5
English Cheshire, Nat. Mark Selected.	72/4	72/4	72/4	72/2	68/10	69/4	61/7	62/1	80/5	83/4
Italian Gorgonzola (*d*)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	103/3	79/7	* 102/2	82/9
Dutch Edam, 40 + (*d*)	49/6	50/-	49/-	48/-	45/4	45/4	44/10	49/7	44/4	54/5
Canadian, finest white	6) 67/-	6) 64/6	75/-	71/-	69/6	70/7	63/7	60/-	60/3	54/-
New Zealand, finest white.	68/3	63/6	62/3	62/9	62/3	61/2	48/2	49/3	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted* — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week.

1) Home prices are increased by a consumers'-duty which was, from 28/6 to 11/7 0.90 florins, from 12/7 to 25/7 0.80, from 26/7 to 1/8: 0.75, subsequently 0.80 — 2) See note page 306 of the *Crop Report* April 1934 — 3) Prices of 1933-cheese are compared, for the preceding years, with those of cheese made in 1932 and 1931 respectively; prices of 1934-cheese with those of cheese made in 1933 and 1932. The yearly averages refer to the périods from Sept. to August. — 4) From 27 September 1935, export prices. — 5) 10 July (revised): 59 — 6) New make

DESCRIPTION	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	AVERAGE July 1936	AVERAGE August 1935	AVERAGE August 1934	AVERAGE Commercial Season 1)	
									1935	1934
Eggs.										
Antwerp, auction: Belgian, average qual. (frs. p. 100)	52.00	50.00	46.00	45.00	42.00	42.80	54.00	43.40	48.35	42.80
Denmark (a): Danish for export (crs. per quintal)	110 00	100.00	90.00	86.00	86.00	82.00	117.50	106.50	106.75	103.60
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):										
Fixed price for export into Germany	...	...	...	. .	...	...	3.78	3.58	3.75	3.96
Price for other destinations	...	...	...	...	...	...	2.74	3.15	2.97	3.34
Warsaw (b): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	...	...	84.00	78.00	74.00	6) 77.15	92.83	86.50	104.43	106.50
Berlin (c): German, big, new laid (Rm. p. 100):										
marked «GIS», 65 gr. each	12.00	12.00	12.00	12.00	9.25	10.35	11.50	9.67	10.57	10.37
marked «GIB», 55/60 gr. each	10.00	10.00	10.00	10.00	8.25	8.95	10.00	8 15	9.34	9.03
London, Egg Exchange (d) (sh. p. great hundred):										
English, National Mark, specials	17/-	17/-	7/-	17/-	16/-	16/1 ½	17/6	17/2 ¼	15/9	15/5
Belgian, 15 ½ lb. p. 120	10/-	9/7 ½	9/3	8/11 ¼	8/7 ½	* 8/10	10/11 ½	n. q.	* 11/3 ¼	* 11/0 ¾
Danish, 18 lb. p. 120	12/10 ½	13/-	12/10 ½	12/6	11/6	11/10 ¾	12/11 ¼	12/8 ½	12/5	12/5 ¾
Northern Irish, 18 lb. p. 120 2)	16/9	15/9	15/9	15/9	13/10 ½	14/9 ¾	16/2 ½	17/2	15/1 ½	* 12/9 ½
Dutch, all brown, 18 lb. p. 120	13/10 ½	13/9	13/9	13/1 ½	12/9	12/10	14/-	13/9 ½	13/2 ¼	13/5
Polish, 51/52 grams each	6/9	6/8 ¼	6/6	6/4 ½	6/5 ¼	6/4 ¾	7/10 ½	7/5 ½	* 7/1 ¼	6/10 ¾
Chinese, violet	8/9	n. q.	n. q.	n. q.	n. q.	n. q.	9/1 ½	9/1 ½	* 8/10 ½	* 8/3 ¼
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/2 ½	* 11/5 ¾
Maritime freights (RATES FOR ENTIRE CARGOES).									1935-36	1934-35
Shipments of Wheat and Maize.										
Danube to Antwerp/Hamburg. (shill. per long ton)	15/6	15/6	n. q.	n. q.	n. q.	* 15/9	* 14/-	n. q.	* 14/7	* 13/11
Black Sea to Antwerp/Hamb. (shill. per long ton)	12/-	11/10 ½	11/10 ½	11/9	n. q.	* 10/7 ½	9/9	9/5 ½	* 10/-	* 9/11
St. John to Liverpool 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/0 ¾	* 1/6
Port Churchill to United Kingdom (shill. per 480 lb.)	2/9	2/9	n. q.	n. q.	n. q.	n. q.	n. q.	2/9	n. q.	* 2/9
Montreal to United Kingdom (shill. per 480 lb.)	2/-	2/-	2/-	2/-	2/-	2/-	n. 1/6	1/4 ½	* 1/11	* 1/6 ¾
Gulf to United Kingdom 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	2/6	2/6	* 2/6	2/6
New York to Liverpool 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n q	n. q.	n. q.	1/6	n. q.	* 1/6	1/6
Northern Range to U.K./Cont. (shill. per 480 lb.)	n. q.	2/-	2/-	n. 2/-	2/-	2/-	1/6	n. q.	1/10	n. q.
North Pacific to United Kingdom (sh. per long ton)	19/-	19/-	19/-	19/-	19/-	* 19/0 ¾	* 16/-	* 19/11 ½	19/3 ¾	* 18/1 ½
La Plata Down River 4) /Bahia Blanca to U. K./Continent (shill. per long ton)	16/9	16/9	16/9	16/9	16/9	16/9	7) 15/9	15/1 ¾	* 16/6 ½	14/11
La Plata Up River 5) /Necochea to U.K./Continent (shill. per long ton)	18/- ½	18/1 ½	18/1 ½	18/-	18/-	18/0 ¼	7) 17/-	16/6	17/9 ½	16/2
Western Australia to U. K./Continent (shill. per long ton)	8) 28/-	8) 28/-	8) 28/-	n. q.	n. q.	8) * 28/-	7) 24/6	24/6	* 26/6	24/6
Shipments of Rice.									1935	1934
Saigon to Europe (shill. per long ton)	25/-	24/-	24/-	23/9	23/9	23/9 ¾	19/9	23/6	* 23/5	24/2 ¾
Burma to U. K./Continent (shill. per long ton)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 21/8	* 23/3

---

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review. — n. q. = *not quoted* — n. = *nominal*. — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) From 28 Feb. "Extra special" quality. — 3) Rates for parcels by liners. — 4) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 5) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 6) 6-11 July: 75.50; 29 June-4 July: 74.25. — 7) Minimum rate of freight. — 8) South Australia.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE SWISS FRANC 1).

NATIONAL CURRENCIES	Actual Exchange Rates					Percentagedeviaton from Parity with Swiss Franc: premium (+) or discount (—)				
	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936	14 August 1936	7 August 1936	31 July 1936	24 July 1936	17 July 1936
Germany : free reichsmark.	123.375	123.325	123.150	123.150	123 225	— 0.1	— 0.1	— 0.2	— 0.2	— 0.2
Argentina : paper peso †) 2)	...	...	...	89.900	89.842	...	...	...	— 59.1	— 59.2
Belgium : belga.	51 675	51.675	51.625	51.625	51.650	— 0.4	— 0 4	— 0.5	— 0.5	— 0.5
Canada : dollar	3.067	3.070	3.057	3 055	3.050	— 40.8	— 40 8	— 41.0	— 41.1	— 41.2
Denmark : crown	68.850	68.725	68.550	68 550	68.520	— 50 4	— 50.5	— 50.6	— 50.6	— 50.7
Spain : peseta	n q	41.500	41 750	41.900	41.950	n. q	— 58 5	— 58.3	— 58.1	— 58.1
Egypt: pound 3) United Kingdom : pound sterling	15.430	15 400	15.355	15.355	15.345	— 38 8	— 38.9	— 39.1	— 39.1	— 39.2
United States : dollar	3.067	3.067	3.062	3 059	3.054	+ 0.2	+ 0.2	0.0	— 0.1	— 0.2
France : franc Indo-China: piaster 4)	20 205	20.207	20 215	20.225	20.245	— 0.5	— 0.5	— 0.4	— 0.4	— 0.3
Hungary : pengő 5)	59 625	59 000	58.625	58.625	59.125	— 34.2	— 34.9	— 35.3	— 35.3	— 34.8
India : rupee †)	116 496	116 270	115.930	115.930	115.855	— 38.4	— 38 5	— 38.7	— 38.7	— 38.8
Italy : lira	24 150	24 150	24 100	24 125	24.125	— 11.5	— 11.5	— 11.6	— 11.6	— 11.6
Japan : yen †)	90.394	90.218	89 955	89.955	89 896	— 65 0	— 65 1	— 65.2	— 65.2	— 65.2
Netherlands : florin	208 325	208 250	208.000	207 875	208.050	0 0	0.0	— 0.2	— 0 2	— 0.1
Poland : zloty	58.000	58.000	58.000	58.000	58 000	— 0.2	— 0.2	— 0 2	— 0.2	— 0.2
Rumania : leu 5)	1 825	1.825	1.825	1 825	1.875	— 41 1	— 41 1	— 41.1	— 41.1	— 39.5
Sweden: crown	79 525	79.375	79 150	79.150	79 125	— 42.7	— 42.9	— 43.0	— 43.0	— 43.0
Czechoslovakia : crown	12.662	12 662	12.662	12.675	12.675	— 1.0	— 1.0	— 1.0	— 0.9	— 0.9

1) The exchange rate represents the value of 100 units of the national currency (one unit for the dollar and the pound sterling) expressed as far as possible in Swiss francs on the Zurich Exchange. With regard to the currencies marked thus † a conversion has been made, the original exchange rates on London being converted into Swiss francs at the rate of the £ in Zurich. — 2) Fixed exchange rates. — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged, the exchange rate of the latter only is given. — 4) As the relation between the Indo-Chinese piaster and the French franc changes only slightly, the exchange rate of the latter only is given. — 5) Bank notes.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

In the following pages the index-numbers of prices of agricultural products and other price-indices, of interest to the farmer, are given as published in the different countries.

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

Percentage variations in the index-numbers for July 1936.

COUNTRIES	Comparison with June 1936		Comparison with July 1935	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index numbers of prices of agricultural products	Index-numbers of wholesale prices in general
Germany	+ 0.4	+ 0.2	+ 2 9	+ 2.4
England and Wales	— 1.7	+ 2.8	— 0 8	+ 2.9
Argentina	+ 5.5	—	+ 26 5	—
Canada	+ 2.8	+ 2 9	+ 8 0	+ 4.2
United States: Bureau of Agric. Economics	+ 7 5	—	+ 12 7	—
United States: Bureau of Labor	+ 4 1	+ 1 6	+ 5.4	+ 1.4
Finland	+ 1.3	+ 1 1	+ 1.3	+ 1.1
Hungary	+ 1 4	+ 1.2	— 10 1	— 4.4
New Zealand	+ 5.1	—	+ 21.3	—
Netherlands	0.0	+ 1.1	+ 8 2	+ 2.8
Poland	...	...	...	...
Yugoslavia:				
plant products	— 5.6	+ 0.3	+ 0.9	+ 3.6
livestock products	+ 8.7		+ 9.9	

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER [1]

DESCRIPTION	July	June	May	April	March	Feb.	July	July	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	117.2	116.9	116.4	115.5	114.8	114.0	116.2	115.0	113.4	108.7
Livestock	89.1	88.9	88.7	89.0	88.4	90.0	85.9	67.8	84.2	70.9
Livestock products	108.8	107.3	107.2	107.3	107.4	108.1	105.5	101.9	107.1	105.0
Feeding stuffs	110.2	111.2	110.7	109.8	108.8	108.3	103.8	110.6	104.6	102.0
Total agricultural products	106.1	105.7	105.3	105.0	104.5	104.8	103.1	97.5	102.2	95.9
Fertilizers	62.9	68.4	67.9	69.9	69.9	69.8	64.9	66.8	66.8	68.7
Agricultural dead stock	111.4	111.3	111.4	111.3	111.2	111.2	111.1	111.5	111.1	111.1
Finished manufactures ("Konsumgüter")	127.4	126.7	126.2	125.9	125.6	125.1	123.9	115.8	124.0	117.3
Wholesale products in general.	104.2	104.0	103.8	103.7	103.6	103.6	101.8	98.9	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 2)	119	121	120	129	122	123	120	117	123	119
Feeding stuffs	93	87	85	86	85	83	83	88	87	91
Fertilizers	89	89	89	89	89	89	89	91	88	90
Wholesale products in general 3)	102.1	99.3	100.2	100.9	101.6	102.0	99.2	96.9	99.5	96.4
Argentina (Banco Central de la República Argentina) 1926 = 100.										
Cereals and linseed	85.1	78.9	78.3	78.5	77.7	76.3	62.5	69.6	67.2	68.1
Meat	95.7	92.8	89.4	85.5	86.5	88.4	84.7	78.7	84.0	78.1
Hides and skins	77.7	78.1	80.7	88.6	93.2	94.7	75.2	60.0	90.5	71.6
Wool	100.1	98.9	97.7	98.2	99.2	94.4	75.4	82.1	74.6	84.3
Dairy products	84.6	86.6	94.2	83.0	73.3	80.3	100.5	65.0	88.8	62.3
Forest products	95.5	97.7	98.0	97.7	95.0	95.0	91.8	71.6	92.2	73.1
Total agricultural products	87.0	82.5	82.1	82.5	82.2	81.3	68.8	70.4	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain, etc.)	63.2	60.8	59.9	59.8	59.2	58.9	55.1	57.7	57.1	53.8
Livestock and livestock products	71.6	70.7	73.0	73.8	76.0	77.8	72.0	63.7	73.9	67.7
Total Canadian farm products	66.3	64.5	64.8	65.0	65.5	66.0	61.4	59.9	63.4	59.0
Fertilizers	74.3	74.3	74.3	72.9	24.3	75.6	75.8	74.6	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.0	75.3	75.3	75.3	75.8	75.7	75.5	76.7	75.7	77.0
Wholesale products in general.	74.4	72.3	71.8	72.2	72.4	72.5	71.4	72.0	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696). — 2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. — 3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	July	June	May	April	March	Feb.	July	July	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	109	87	88	89	92	92	96	91	103	93
Cotton and cottonseed	105	96	96	96	93	94	102	99	101	99
Fruits	117	115	103	89	94	92	98	113	91	100
Truck crops (market garden crops)	115	99	105	107	77	117	93	102	127	104
Meat animals	119	120	118	125	122	125	116	66	117	68
Dairy products	116	106	106	114	118	123	97	93	108	95
Chickens and eggs	106	103	101	97	99	121	107	76	117	89
Miscellaneous	131	120	97	94	91	94	85	94	97	108
Total agricultural products	115	107	103	105	105	109	102	87	108	90
Commodities purchased 1)	123	120	121	121	121	122	126	122	125	123
Agricultural wages 1)	—	108	—	—	101	—	99	90	95	88
United States (Bureau of Labor) 1926 = 100.										
Cereals	88.9	73.0	70.6	73.9	75.6	78.3	78.3	74.8	82.4	74.5
Livestock and poultry	82.0	83.2	82.5	88.3	88.3	90.3	82.8	48.8	84.9	51.5
Other farm products	78.2	75.8	71.4	74.4	69.1	72.7	72.9	70.5	73.4	70.5
Total agricultural products	81.3	78.1	75.2	76.9	76.5	79.5	77.1	64.5	78.7	65.3
Agricultural implements	94.2	94.2	94.2	94.2	94.2	94.9	93.6	92.0	93.7	89.6
Fertilizer materials	65.2	64.0	64.7	64.6	64.8	64.5	65.7	67.6	66.3	67.1
Mixed fertilizers	68.7	66.0	65.3	64.5	68.3	68.8	68.6	72.8	70.6	72.5
Cattle feed	107.9	80.7	71.2	74.0	67.9	68.1	78.6	88.8	88.4	89.4
Non-agricultural commodities	80.3	79.4	79.2	80.1	80.2	80.7	79.8	76.9	80.2	76.9
Wholesale products in general	80.5	79.2	78.6	79.7	79.6	80.6	79.4	74.8	80.0	74.9
Finland (Central Bureau of Statistics) 1926 = 100										
Cereals	87	89	88	88	87	84	79	80	80	82
Potatoes	93	83	83	85	83	83	89	42	75	49
Fodder	59	65	66	66	65	65	68	70	62	72
Meat	88	82	77	80	83	82	79	77	75	71
Dairy products	81	80	78	78	84	86	82	70	83	75
Total agricultural products	79	78	76	78	81	81	78	72	76	73
Wholesale products in general	91	90	90	90	91	91	90	89	90	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	71	70	72	75	79	82	79	66	—	—
Wholesale products in general	86	85	86	88	91	93	90	79	—	—
Italy (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	...	...	...	...	...	...	357.4	292.3	...	297.9
Wholesale products in general	...	...	...	...	...	...	319.1	272.9	...	275.8
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	114.2	106.9	96.9	92.6	93.2	97.4	88.7	84.2	91.3	76.7
Meat	158.4	159.8	157.8	159.2	159.3	160.2	151.5	161.0	157.6	151.8
Wool	111.7	102.2	109.0	108.3	113.7	104.8	84.4	103.2	82.2	127.3
Other pastoral products	123.1	121.6	116.4	120.5	121.4	117.1	98.2	88.3	96.7	88.8
All pastoral and dairy products	126.8	121.9	118.0	116.6	118.1	118.1	105.0	108.5	107.2	108.9
Field products	118.8	127.4	128.8	129.9	133.4	132.3	124.5	123.5	126.0	120.0
Total agricultural products	128.3	122.1	118.4	117.0	118.6	118.5	105.8	108.8	108.8	104.7

---

1) 1910-1914 = 100. — 2) July.

Description	July 1936	June 1936	May 1936	April 1936	March 1936	Feb. 1936	July 1935	July 1934	Year	
									1935-36 3)	1934-35 3)
Norway (Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	148	148	145	145	145	145	148	101	144	126
Potatoes	128	132	147	155	160	160	240	282	165	132
Pork	101	101	93	108	111	113	93	76	109	83
Other meat	155	146	143	144	143	145	150	140	146	137
Dairy products	135	137	137	137	137	137	79	130	139	132
Eggs	98	88	88	101	110	109	139	74	102	92
Concentrated feeding stuffs	127	126	129	126	124	125	126	98	123	109
Maize	128	125	125	124	120	120	115	90	113	101
Fertilizers	87	88	89	88	88	87	78	88	82	81
Netherlands (Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	52	47	50	48	47	49	53	56	50	58
Livestock products	54	55	54	53	50	50	48	53	51	49
Total agricultural products	53	53	53	51	49	50	49	53	51	51
Agricultural wages	69	69	68	69	69	69	69	71	69	71
Wholesale products in general 1)	62.3	61.6	61.0	61.1	61.5	62.0	60.6	—	4) 61.5	4) 63.0
Poland (Central Bureau of Statistics) 1928 = 100.									1935	1934
Raw plant products	.	40.0	39.8	39.1	36.0	35.2	33.1	38.6	33.9	35.6
Meat animals	.	40.6	41.1	38.5	34.7	34.4	37.5	36.9	35.5	36.7
Dairy products and eggs	..	35.5	37.5	38.4	39.3	43.4	38.8	38.1	41.2	41.2
Products directly sold by farmers	..	39.4	39.8	38.8	36.2	36.5	35.6	37.9	35.8	37.0
Flour and groats	..	39.7	39.2	40.0	36.0	35.3	33.8	40.7	36.7	38.8
Meat and lard-fat	.	46.6	48.0	42.2	39.3	39.5	43.1	42.1	40.8	43.5
Sugar, alcohol, beer	...	71.7	71.6	71.8	71.8	71.8	79.3	90.1	79.2	88.6
Products of agricultural industries	...	52.6	52.9	51.2	48.9	48.7	51.9	57.4	52.0	56.7
Total agricultural products	...	45.9	46.3	44.9	42.4	42.5	43.7	47.5	43.8	46.8
Commodities purchased 2)	..	64.1	63.8	64.1	64.3	64.6	66.0	...	66.3	70.3
Wholesale products in general 2)	..	53.8	53.7	53.0	52.1	52.2	52.8	...	53.0	55.7
Yugoslavia (National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	60.9	64.5	69.0	76.3	80.5	82.9	60.3	60.0	68.2	57.4
Livestock products	61.1	56.2	57.4	56.5	55.6	53.8	55.6	52.0	56.6	55.4
Industrial products	67.5	67.6	67.9	69.4	69.7	69.9	65.7	66.3	66.7	67.4
Wholesale products in general	65.6	65.4	67.0	69.1	70.0	70.0	63.3	62.8	65.9	63.2

---

1) New index numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100 — 2) In consequence of a revision of the index numbers of the prices of fertilizers, the other Series affected by these prices have also been revised — 3) Agricultural year Norway 1st April 31 March, Netherlands 1st July-30 June. — 4) Calendar year.

SUPPLEMENTARY INFORMATION ON PRICES

In the table below some quotations are given of Friday 21 August 1936. The qualities and price-units used in various markets will be found in the table "Weekly Prices by Products" pages 610-613.

Wheat

Budapest		14.98
Winnipeg		99 3/4
Chicago		120 3/8
Minneapolis		132 5/8
New-York		127 3/8
Buenos Aires		11.95
Berlin	1)	19.40
Hamburg: Manitoba Nº 1		11.07
» Barusso		11.16
Paris		n. q.
London: Home-grown		36/6
Liverpool and London:		
French		n. q.
South Russian		n. q.
Nº 1 North. Manitoba (Atlantic)		37/3
Nº 1 North. Manitoba (Pacific)		37/4 1/2
Nº 3 North. Manitoba (Pacific)		36/3
White Pacific	2)	36/9
Rosafé	3)	34/3
West Australian	2)	39/-
New South Wales	4)	38/-
Milan	1)	123.00

Rye

Berlin	1)	15.70
Budapest		12.33

Barley

Prague	1)	125,00
Berlin	1)	16.00
London		n. q.
Liverpool and London.		
Danubian		20/3
Russian		n. q.
Canadian Nº 3 Western		24/10 1/2
Californian		n 38/-
Plata	3)	19/10 1/2
Persian	[illegible])	19/10 1/2

Oats

Buenos Aires		6.40
Berlin	1)	15.80
Paris		91.00
London		21/6
Liverpool and London.		
Canadian Nº 2 Western		23/9
Plata		15/6
Milan: Home Grown		90.00
» Foreign		92.00

Maize

Buenos Aires		6.30
Liverpool and London:		
Danubian		n. q.
Yellow Plata		23/6
Nº 2 African		n. q.
Milan		96.50

Rice (milled)

Milan: Vialone		173.50
» Maratelli		159.50
» Originario		125.00
Marseilles		63.00
London: Nº 3 Belloch		n. q.
» Italian		n. q.
» American Blue Rose		n. q.
» Nº 2 Rangoon		8/-
» Nº 1 Saigon		9/-
» Siam Super		9/3

Linseed

Buenos Aires		15.10
London: Plata		12-2-6
» Bombay		14-7-6
» Duluth	5)	206 1/2

Cotton

New Orleans		11.83
New York		12.03
Bombay: F. G. Broach futures		221
Alexandria: Sakellaridis, f. g. f		17.30
» Ashmuni, f. g. f		13.15
Le havre		248.50
Liverpool: Middling, fair		7.84
» Middling		6.74
» São Paulo, g. f.		6.74
» Broach, g. f	1.	5.29
» C P Oomra s'fine		5.54
» Sakellaridis, f. g. f.		10.34
» Upper Egyptian, f g. f.		8.00

Butter

Copenhagen		227.00
Leeuwarden		62
London: English		142/4
» Danish		128/-
» Estonian		n q.
» Lettonian		n q.
» Dutch		112/-
» Argentine		108/-
Siberian		112/6
» Australian		120/6
» New-Zealand		121/6

Cheese

Milan: Parmigiano 1933		875.00
» » 1934		845.00
» Gorgonzola		585.00
London: Cheddar		78/-
» Chesire		74/8
» Gorgonzola		n. q.
» Edam 40 %		48/-
» Canadian		69/3
» New-Zealand		70/6

1) New crop, See note on page 600 — 2) Shipping October. — 3) New crop, shipping Jan Feb. — 4) Shipping Sept. — 5) September futures.

RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark Sweden	Egypt	Spain Switzerland	United States (4)	France Indo China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czecho-slovakia (6)
Germany . . .	Reichsmark	1 000	0 561	11 898	0 238	0 889	4 819	1 235	0 403	6 080	0 979	1 362	0 653	4 526	0 478	0 593	2 123	39 825	9 648
Argentina .	Paper peso	1 782	1 000	21 203	0 424	1 584	8 586	2 200	0 718	10 833	1 744	2 427	1 163	8 064	0 851	1 056	3 872	70 959	17,191
Belgium	Franc (2)	0 084	0 047	1 000	0 020	0 075	0 040	0 104	0 034	0 511	0 082	0 114	0 055	0 380	0 040	0 050	0 178	3 347	0 811
Canada . . .	Dollar (3)	4 198	2 356	49 948	1 000	3 731	20 230	5 183	1 693	25 524	4 110	5 718	2 740	19 000	2 006	2 488	8 914	167 181	40 501
Denmark/Sweden . .	Crown	1 125	0 631	13 385	0 268	1 000	5 422	1 389	0 454	6 840	1 101	1 532	0 734	5 092	0 538	0 667	2 389	44 803	10.854
Egypt	Piastre	0 207	0 116	2 469	0 049	0 184	1 000	0 256	0 083	1 262	0 203	0 283	0 135	0 939	0 099	0 123	0 441	8 264	2 002
Spain/Switzerland . .	Peseta, Fr	0 810	0 455	9 638	0 193	0 720	3 903	1 000	0 327	4 925	0 793	1 103	0 529	3 666	0 387	0 480	1 720	32 258	7 815
United States .	Dollar (4)	2 479	1 391	29 500	0 591	2 204	11 948	3 061	1 000	15 074	2 427	3 377	1 618	11 221	1 185	1 469	5 265	98 737	23.920
France/Indo China (5)	Franc	0 164	0 092	1 957	0 039	0 146	0 793	0 203	0 066	1 000	0 161	0 224	0 107	0 744	0 079	0 097	0 349	6 550	1 587
Great Britain .	Shilling	1 021	0 573	12 154	0 243	0 908	4 923	1 261	0 411	6 211	1 000	1 391	0 667	4 623	0 488	0 605	2 169	40 680	9 856
Hungary . .	Pengö	0 734	0 412	8 736	0 175	0 653	3 580	0 905	0 296	4 464	0 720	1 000	0 479	3 323	0 351	0 435	1.559	29 240	7.084
India	Rupee	1 532	0 860	18 231	0 365	1 362	7 384	1 892	0 618	9 316	1 500	2 087	1 000	6 935	0 732	0 908	3.254	61 020	14.783
Italy.	Lira	0 221	0 124	2 629	0 053	0 196	1 065	0 273	0 090	1 343	0 216	0 301	0 144	1 000	0 106	0 131	0 469	8 799	2 131
Japan	Yen	2 092	1 174	24 897	0 498	1 860	10 084	2 583	0 843	12 723	2 049	2 850	1 366	9 471	1 000	1 240	4 443	83.333	20.189
Netherlands	Florin	1 687	0 947	20 077	0 402	1 450	8 132	2 083	0 681	10 260	1 652	2 298	1 101	7 637	0 806	1 000	3 583	67.200	16.280
Poland	Zloty	0 471	0 264	5 603	0 112	0 419	2 269	0 581	0 190	2 863	0 461	0 641	0 307	2 131	0 225	0 279	1 000	18.755	4.543
Romania	Leu	0 025	0 014	0 299	0 006	0 022	0 121	0 031	0 010	0 153	0 025	0 034	0 019	0 114	0 012	0 015	0 053	1 000	0.242
Czechoslovakia . . .	Crown (6)	0 103	0 058	1.233	0 025	0 092	0 499	0 128	0 042	0 630	0 102	0 141	0 067	0 469	0 049	0 062	0 220	4 127	1.000

---

(1) Each quotation shows the par-value of the moneys named in the column headed " Unit of currency " calculated in terms of the currency of the countries printed in the heading — (2) From 31 March 1935 the franc represents only 72 % of its previous gold value — (3) Till 31 January 1934 also parity of the United States. — (4) New parity as from 31 January 1934 — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only 5/6 of its previous gold value

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile*

MONTHLY CROP REPORT
AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = *excellent,* 2 = *good,* 3 = *average,* 4 = *bad,* 5 = *very bad; France:* 100 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *average,* 30 = *bad; Estonia, Lithuania, Poland and Sweden;* 5 = *excellent,* 4 = *good,* 3 = *average,* 2 = *bad,* 1 = *very bad; Netherlands:* 90 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *below average; Switzerland:* 100 = *excellent,* 90 = *very good,* 75 = *good,* 60 = *fairly good,* 50 = *average,* 40 = *rather bad,* 30 = *bad,* 10 = *very bad; U. S. S. R.·* 5 = *good,* 4 = *above the average,* 3 = *average,* 2 = *below average,* 1 = *bad; Canada:* 100 = *crop condition promising a yield equivalent to the average yield of a long series of years; United States:* 100 = *crop condition which promises a normal yield; Egypt:* 100 = *from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed:* 100 = *crop condition which promises a yield equal to the average of the last ten years.*

CEREALS

Wheat. — The official figures for July show that exports in this month were about the same as those of June. The results also resemble those of June in that they were larger than those of the corresponding month of last year but below the average figures of the corresponding months of the five years ending 1934-35.

The total for the season which closed in July, is about 508 million bushels, or about 4 million bushels below the reduced total for the preceding year. Compared with the estimate made in these surveys in October 1935 and March 1936, the decrease is greater, the partial recovery in exports which was anticipated this year having failed to materialize.

World net exports of wheat (including flour in terms of wheat) *.

(Million bushels).

Months	1935-36	1934-35	1933 34	1932-33	1931-32	1930-31	1929-30
August	39	49	45	41	66	77	71
September	50	43	51	48	78	74	57
October	51	50	46	62	74	84	60
November	51	43	41	54	67	77	51
December	34	38	51	60	64	59	50
January	34	43	48	62	62	54	48
February	46	41	44	64	73	70	45
March	45	49	50	64	74	67	50
April	30	42	35	40	70	62	42
May.	45	47	44	52	67	81	50
June	41	32	45	42	59	67	51
July	42	35	46	44	45	52	53
Total . . .	*508*	*512*	*546*	*633*	*799*	*824*	*628*

* Aggregate net exports of the normal exporting countries (United States net imports not deducted).

The net imports for the year of the European importing countries practically coincide with the figure estimated in October 1935 and March 1936, that is, 220 million bushels for the United Kingdom and Ireland and 135 millions for the other European importers, a total of 355 millions for the whole of Europe. These figures, as the following table shows, are nearly the same as those of last year.

Net imports of wheat into Europe (including flour in terms of wheat) *.

(Million bushels)

Months	Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	11	27	18	14	32
September	15	13	28	20	16	36
October	21	15	36	18	13	31
November	21	14	35	17	12	29
December	20	11	31	20	12	32
January	15	10	25	12	10	22
February	14	8	22	16	10	26
March	20	8	28	20	11	31
April	18	9	27	17	10	27
May	20	11	31	22	10	32
June	21	12	33	18	10	28
July	19	12	31	19	12	31
Total	*220*	1) *134*	1) *354*	*217*	2) *140*	2) *357*

* Aggregate net imports of normal importing countries, after deduction of net exports, if any.

1) After deduction of net exports of 7 million bushels from Latvia, Portugal and Sweden. — 2) After deduction of net exports of 21 million bushels from France, Estonia, Latvia and Sweden.

The information received by the Institute on the European wheat crops since the publication of the August number of the *Crop Report* appears, on the whole, to indicate that the results of the year will be even more unfavourable than the expectations of a month ago. Though production in the Danube countries is very appreciably larger than what it was last year and larger than the average of the preceding five years, yields in several important producing countries of Central and Western Europe are poor and in a number of cases the outturns will be considerably below last year's. Most of these countries experienced wet, stormy and cold weather from the end of the spring; the growth of the crops was hindered and widespread lodging increased the difficulties of harvesting. The effects of these adverse conditions in some countries now appear to be more severe than they were previously thought to be. Estimates for same countries are not yet available, while those which have been made are subject to revision, but, to judge from the information at present available, total production in Europe, will vary around 1,470 million bushels . The 1936 crop will thus be the lowest of the last five years but it will be larger than the results of the years prior to 1932.

Wheat.

Countries	†) Area 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 1936/37: 1935 — 1935/36 = 100	Aver. = 100	†) Production 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 1936/37: 1935 — 1935/36 = 100	Aver. = 100
	1 000 acres					1 000 centals			1 000 bushels				
Germany	1) 5 145	5 205	5 310	98.9	96.9	1) 106 287	102 894	102 128	1) 177 143	171 487	170 209	103.3	104.1
Austria	629	609	535	103.3	117.5	8 076	9 306	7 576	13 459	15 509	12 626	86.8	106.6
Belgium	386	387	384	99.6	100.4	9 447	8 868	8 836	15 744	14 780	14 726	106.5	106.9
Bulgaria	2 644	2 729	3 078	96.9	85.9	) 33 466	28 755	31 719	55 777	47 925	52 864	—	—
*Denmark		311	259				8 865	6 679		14 774	11 131		
Spain	) 10 768	11 254	11 237			72 896	94 795	94 848	121 493	157 985	158 080	76.9	76.9
Estonia	157	154	127	101.7	123.8	1 389	1 360	1,322	2 315	2 267	2 203	102.1	105.1
*Irish Free State		163	43				4 011	1 019		6 686	1 698		
Finland	191	174	71	109.4	268.9	2 822	2 540	1 105	4 703	4 233	1 842	111.1	255.3
*France		[illegible]	13 281				170 973	183 193		284 955	305 322		
England and Wales	1 703	1 772	1 450	96.1	117.4	31 853	36 355	28 932	53 088	60 592	48 220	87.6	110.1
Scotland	94	101	66	93.3	141.5	2 038	2 666	1 649	3 397	4 443	2 748	76.5	123.6
*Northern Ireland	7	9	5	77.8	134.0		217	119		362	198		
Greece	2 104	2 092	1 623	100.6	129.6	14 247	16 308	11 048	23 745	27 181	18 414	87.4	128.9
Hungary	4 107	4 135	3 943	99.3	104.2	52 637	50 535	45 904	87 721	84 223	76 506	103.6	114.1
*Italy		12 422	12 170				170 076	151 564		283 454	252 607		
Latvia)	172	210	168	81.7	101.9	1 823	2 626	2 303	3 039	4 376	3 838	69.4	79.2
*Lithuania	485	536	505	90.4	95.9		6 056	5 455		10 093	9,092		
Luxemburg	43	43	30	100.0	143.0	654	613	448	1 091	1 022	747	106.7	146.0
*Malta		9	9				107	177		179	295		
*Norway		59	32				1 122	482		1 869	804		
Netherlands	375	380	267	98.5	140.3	9 755	9 992	7 087	16 259	16 653	11 807	97.6	137.8
Poland	4 326	4 335	4 280	99.8	101.1	46 738	44 351	44 561	77 897	73 883	74 268	105.4	104.9
Portugal		1 377	1 321			5 036	13 256	10 871	8 393	22 092	18 118	38.0	46.3
Rumania	8 402	8 496	7 704	98.9	109.1	72 733	57 864	62 069	121 222	96 438	103 446	125.7	117.2
Sweden	693	674	707	102.9	98.1	13 624	14 167	14 351	22 707	23 611	23 918	96.2	94.9
Switzerland	171	150	142	114.0	120.6	2 818	3 594	2 692	4 696	5 990	4 486	78.4	104.7
Czechoslovakia	2 296	2 387	2 147	96.2	107.0	32 440	37 257	32 230	54 066	62 094	53 716	87.1	100.7
Yugoslavia	5 305	5 313	5 099	99.8	104.0	63 423	43 861	47 697	105 705	73 100	79 494	144.6	133.0
Total Europe	6) *51 088*	*51 977*	*49 689*	*98.3*	*102.8*	*583 955*	*581 941*	*559 373*	*973 259*	*969 898*	*932 289*	*100.3*	*104.4*
*U.S.S.R.	34 721	32 507	27 080	106.8	128.2		263 597	217 208		439 319	362 013		
		60 786	58 7[illegible]1				416 086	337 518		693 464	562 517		
Canada	25 288	24 116	25 682	104.9	98.5	139 784	166 403	209 136	232 973	277 339	348 560	84.0	66.8
United States	3) 37 875	4) 33 343	4) 37 073	113.6	102.2	311 400	278 532	331 252	519 000	464 220	552 087	111.8	94.0
	) 13 184	4) 17 985	4) 17 098	73.3	77.1	66 600	95 545	107 744	111 000	159 241	179 573	69.7	61.8
Mexico	1 217	1 199	1 244	101.5	97.9	7 796	6 167	7 248	[illegible]	10 278	[illegible]	126.4	107.6
Total North America	*77 564*	*76 663*	*81 097*	*101.2*	*95.6*	*525 580*	*546 637*	*655 380*	*875 966*	*911 062*	*1 092 300*	*96.1*	*80.2*
*Chosen		800	809				5 848	[illegible]		9 747	[illegible]		
India	33 651	34 430	33 315	97.5	100.9	211 344	217 907	214 368	352 240	363 178	357 280	97.0	98.6
Japan	1 686	[illegible]	1 356	105.7	124.4	27 730	29 233	22 080	46 217	48 721	36 800	94.9	125.6
Manchukuo	2 644	2 397	3 243	110.3	81.5	21 468	22 162	27 066	35 812	36 936	45 110	97.0	79.4
*Palestine			490				2 271	1 523		3 785	2 538		
*Syria and Lebanon	1 317	1 288	1 245	102.2	105.7		10 026	8 795		16 043	14 658		
*Turkey	w) 6 596	8 474	7 567			48 170	55 585	55 678	[illegible]	92 640	93 178	—	—
Total Asia	*37 961*	*38 514*	*37 914*	*98.6*	*100.1*	*260 562*	*269 302*	*263 514*	*434 270*	*448 836*	*439 188*	*96.8*	*98.9*
Algeria	4,291	4 095	3 893	104.8	110.2	17 056	20 120	19,545	28 427	33 533	[illegible]	84.9	87.4
*Cyrenaica		52	20					47			78		
Egypt	1 464	1 463	1 560	100.0	93.8	27 421	25 933	25 877	45 701	43 221	43 128	105.7	106.0
*Eritrea		11	13				66	44		110	[illegible]		
*Kenya ( )		48	44				343	268		572	447		
French Morocco	3 142	3 616	2 887	86.9	108.9	7 945	12 022	17 705	13 242	20 037	29 508	66.1	44.9
*Tripolitania		30	20				106	81		176	134		
Tunisia		1 829	1 995			4 630	9 921	7 774	7 716	16 534	12 956	46.7	59.6
Total North Africa	§) *10 726*	*11 003*	*10 335*	*97.5*	*103.8*	*57 087*	*67 996*	*70 899*	*95 135*	*113 323*	*118 164*	*84.0*	*80.5*
*Argentina	7) 16,803	7) 14 209	7) 19 369	118.3	86.8		83 776	146 361		139 624	243 936		...
*Chile		2 051	1 763					16 387			27 311	.	
*Uruguay		1,201	1 055				7 708	5 926		12 846	9 876		
*Un. of South Afr.			1 442				12 118	7 268		20 197	12 114		
*Australia	12,400	11,809	15,223	105.0	81.5		85 385	111 464		142 308	185 773		.
*New Zealand		249	266				5 316	4 822		8 859	8,037		
TOTALS	§) **177,339**	**178,157**	**179,035**	**99.5**	**99.1**	**1,427,179**	**1,465,876**	***1,549,166***	**2,378,608**	**2,443,103**	**2,581,922**	**97.4**	**92.1**

See notes on page 626

Rye.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 11,149	11,219	11,141	99.4	100.1	1) 176,127	164,866	172,215	1) 314,513	294,404	307,527	106.8	102 3
Austria	945	930	944	101.6	100.1	10,144	13,673	12,707	18,113	24,416	22,691	74.2	79 8
Belgium	525	529	553	99.3	94.9	7,893	10,372	12,018	14,094	18,522	21,461	76.1	65 7
Bulgaria	431	433	562	99.5	76.7	w) 4,854	4,350	5,424	w) 8,668	7,767	9,685	—	—
*Denmark	...	391	346	...	...	...	6,290	5,361	...	11,232	9,573	...	...
Spain	w) 1,471	1,415	1,494	—	—	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81 5
Estonia	334	357	365	93.3	91.5	3,307	3,810	4,437	5,905	6,804	7,923	86.8	74.5
*Irish Free State	...	2	3	...	...	...	39	53	...	69	95	...	...
Finland	593	598	553	99.2	107.2	7,853	7,706	7,710	14,023	13,760	13,768	101.9	101 9
*France	...	1,668	1,747	..	...	...	16,448	17,932	...	29,372	32,022	...	...
Greece	166	182	173	91.2	95.6	1,418	1,222	1,231	2,531	2,183	2.198	116.0	115 2
Hungary	1,619	1,537	1,583	105.3	102.3	16,141	10,044	15,950	28,822	28.650	28,483	100.6	101 2
*Italy	...	272	291	...	...	...	3,509	3,506	...	6,267	6,262	...	.
Latvia w)	592	658	617	89.9	95 9	6,519	7,941	6,875	11,641	14,180	12,276	82.1	94 8
*Lithuania	1,216	1,267	1,217	96.0	99.9	...	14,124	12,668	..	25,221	22,621	. .	.
Luxemburg	19	19	20	100.0	98.0	273	253	273	487	452	487	107.7	100 0
*Norway	...	15	16	...	...	. .	271	256	...	483	458	...	...
Netherlands	587	519	440	113.1	133.3	11,244	10,323	8,771	20,078	18,434	15,662	108 9	128 [illegible]
Poland	14,378	14,293	14,215	100.6	101.1	140,876	145,881	142,456	251,565	260,502	254,387	96.6	98 9
Portugal	...	332	392	...	...	2,045	2,618	2,599	3,652	4,674	4.640	78.1	78 7
Romania	1,018	960	941	106.0	108.2	8,819	7,126	7,686	15,747	12,724	13,725	123.8	114 7
Sweden	523	560	552	93.4	94.8	8,267	9,585	9,427	14,763	17,116	16,833	86.3	87.7
Switzerland	38	39	44	99.1	86.1	489	717	796	874	1,279	1,422	68.3	61 5
Czechoslovakia	2,510	2,514	2,549	99.8	98.5	30,762	36,121	39,507	54,933	64,502	70,548	85 2	77 9
*Yugoslavia	w) 546	643	628	—	—	...	4,323	4,605	...	7,720	8,223	...	...
Total Europe §)	*37,230*	*37,094*	*37,138*	*100 4*	*100.2*	*447,141*	*453,363*	*462,494*	*798,462*	*809,575*	*825,880*	*98 6*	*96 7*
*U. S. S. R w)	57,426	58,607	64,255	98.0	89.4	...	465,565	486,374	...	831,368	868,528	. .	...
Canada	636	719	858	88.4	74.2	2,790	5,379	5,006	4,982	9,606	8,939	51.9	55 7
United Sates	3) 3,015	4,196	4) 2,917	71.9	103.3	15,176	33,000	17,512	27,100	58,928	31,272	46.0	86.7
Total North Amer.	*3,651*	*4,915*	*3,775*	*74.3*	*96.7*	*17,966*	*38,379*	*22,518*	*32,082*	*68,534*	*40,211*	*46.8*	*79 8*
*Turkey	w) 733	756	656	—	—	5) 4,225	4,765	6,236	7,544	8,508	11,136	—	—
*Algeria	4	3	3	147.3	107.7	...	10	23	...	17	40	...	...
*French Morocco	...	5	2	...	...	...	13	11	...	24	20	...	...
Total Africa	—	—	—	—	—	—	—	—	—	—	—	—	—
*Argentina	7) 1,730	7) 1,750	7) 1,645	98.9	105.1	...	2,800	5,545	...	5,000	9,901	...	...
TOTALS §)	**40,881**	**42,009**	**40,913**	**97,3**	**99,9**	**465,107**	**491,742**	**485.012**	**830,544**	**878,109**	**866,091**	**94.6**	95.9

See notes on page 626.

Barley.

COUNTRIES	†) AREA					†) PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . . .	1) 4,023	3,966	3,915	101.5	102.8	1) 78,651	74,682	69,512	1) 163,859	155,591	144,820	105.3	113.1
Austria	394	402	421	98.0	93.7	5,646	5,959	6,110	11,763	12,415	12,729	94.7	92.4
Belgium . . .	98	96	89	102.0	110.3	963	2,059	2,112	2,007	4,259	4,400	46.8	45.6
Bulgaria . . .	488	501	607	97.5	80.4	w) 5,905	6,211	7,110	w) 12,302	12,941	14,812	—	—
*Denmark	...	851	875	...	...	...	24,229	21,746	...	50,478	45,304	...	...
Spain	w) 4.528	4,549	4,682	—	—	37,690	46,589	53,442	78,523	97,062	111,340	80.9	70.5
Estonia . . .	255	258	267	98.6	95.4	1,852	2,024	2,441	3,858	4,216	5,085	91.5	75.9
*Irish Free State	...	139	119	...	...	...	3,496	2,666	...	7,283	5,555	...	...
Finland	324	315	306	102.9	105.7	4,114	3,658	3,953	8,571	7,621	8,235	112.5	104.1
*France . . .	...	1,787	1,806	...	...	...	22,621	23,068	...	47,127	48,059	...	...
Engl. and Wales	819	792	924	103.5	88.6	14,762	14,694	16,285	30,753	30.613	33,927	100.5	90.6
Scotland	74	77	84	96.7	88.2	1,478	1,702	1,711	3,080	3,547	3,565	86.8	86.4
*Northern Ireland	3	3	2	90.9	163.6	...	71	39	...	148	81	...	...
Greece	503	510	541	98.6	92.8	4,449	4,272	4,165	9,269	8,901	8,678	104.1	106.8
Hungary	1,134	1,057	1,167	107.2	97.2	13,056	12,268	14,029	27,201	25,558	29,227	106.4	93.1
*Italy . .	...	481	529	...	. .	...	4,410	5,121	...	9,187	10,670	...	...
*Latvia . . .	...	477	450	...	...	...	4,511	4,341	...	9,398	9,044	...	...
*Lithuania . .	529	508	490	104.2	108.1	...	5,547	5,150	...	11,556	10,730	...	...
Luxemburg . . .	6	6	8	100.0	68.1	76	71	105	158	149	219	106.1	72.1
*Malta 8) . .	...	5	6	...	...	...	65	128	...	136	267	...	...
*Norway .	...	153	140	...	...	...	2,720	2,349	...	5,667	4,893	...	...
Netherlands . .	107	100	64	106.9	167.7	2,646	3,387	1,598	5,512	7,057	3,329	78.1	165.6
Poland . . .	3,019	3,012	3,000	100.3	100.6	32,188	32,372	31,874	67,059	67,442	66,406	99.4	101.0
*Portugal . . .	...	160	173	...	...	...	1,068	955	...	2,226	1,990	...	...
Romania	3,991	4,079	4,571	97.8	87.3	33,069	20,367	35,311	68,896	42,431	73,567	162.4	93.7
Sweden	259	258	287	100.4	90.3	4,409	4,779	4,928	9,186	9,957	10,266	92.3	89.5
Switzerland . .	10	10	17	100.8	62.0	159	176	264	331	367	550	90.0	60.1
Czechoslovakia .	1,571	1,600	1,700	98.2	92.4	21.456	23,400	27,259	44,701	48.752	56,791	91.7	78.7
*Yugoslavia .	w) 613	1,071	1,089	—	—	...	8,279	9,087	...	17,248	18,931	...	...
Total Europe .	*21,603*	*21,588*	*22,650*	*100.0*	*95.4*	*262,569*	*258,670*	*282,209*	*547,029*	*538,910*	*587,946*	*101.5*	*93.0*
*U. S. S. R. . .	...	21,604	18 219	...	...	...	179,946	139,610	...	374,895	290,859	...	...
Canada . . .	4,432	3,887	4,076	114.0	108.7	35,700	40,308	39,400	74,376	83,975	82,083	88.6	90.6
United Sates .	3) 8,827	4) 12,243	4) 10,640	72.1	83.0	69,600	135,468	102,562	145,000	282,226	213,671	51.4	67.9
Total North Amer	*13,259*	*16,130*	*14,716*	*82.2*	*90.1*	*105,300*	*175,776*	*141,962*	*219,376*	*366,201*	*295,754*	*59.9*	*74.2*
*Chosen	...	2,548	2,448	...	...	...	25,959	21,341	...	54,082	44,461	...	...
Japan	1,918	1,916	2,019	100.1	95.0	33,514	37,732	35,906	69,822	78,610	74,805	88.8	93.3
*Palestine	...	...	453	...	...	...	1,500	1,006	...	3,125	2,096	...	...
*Syria and Leb. .	751	715	797	105.1	94.3	...	7,548	6,977	...	15,725	14,535	...	...
*Turkey	w) 2,587	4,260	3,593	—	—	5) 30,777	30,237	33,523	5) 64,120	62,994	69,841	—	—
Total Asia . . .	*1,918*	*1,916*	*2,019*	*100.1*	*95.0*	*33,514*	*37,732*	*35,906*	*69,822*	*78,610*	*74,805*	*88.8*	*93.3*
Algeria	3,166	3,104	3,349	102.0	94.5	13,228	15,849	16,982	27,558	33,020	35,381	83.5	77.9
*Cyrenaica . . .	...	151	90	...	...	...	...	172	...	...	357	...	...
Egypt	282	281	319	100.6	88.6	5,196	5,021	4,851	10,825	10,461	10,107	103.5	107.1
*Eritrea	...	62	53	...	...	...	276	317	...	574	660	...	...
French Morocco.	4,109	4,303	3,464	95.5	118.6	27,999	17,188	25,334	58,332	35,809	52,781	162.9	110.5
*Tripolitania . . .	...	272	282	...	...	...	1,213	650	...	2,526	1,355	...	...
Tunisia	...	1,532	1,209	...	...	1,653	8,819	4,189	3,445	18,372	8,727	18.7	39.5
Total Africa . . .	*9,089*	*9,220*	*8,341*	*98.6*	*109.0*	*48,076*	*46,877*	*51,356*	*100,160*	*97,662*	*106,996*	*102.6*	*93.6*
*Argentina . . .	7) 1,977	7) 1,940	7) 1,642	101.9	120.4	...	10,141	13,474	...	21,128	28,071	...	...
*Chile	...	161	162	...	...	...	...	2,385	...	...	4,970	...	...
*Uruguay	...	33	14	...	...	...	217	84	...	451	174	...	...
*New Zealand . .	...	21	20	...	...	...	373	315	...	776	657	...	...
TOTALS . . .	**45,869**	**48,854**	**47,726**	**93.9**	**96.1**	**449,459**	**519,055**	**511,433**	**936,387**	**1,081,383**	**1,065,501**	**86.6**	**87.9**

See notes on page 626.

* *St. 9 Ingl.*

Oats.

COUNTRIES	†) AREA					†) PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 6,871	6,893	8,113	99.7	84.7	7) 127,218	118,734	136,318	1) 397,553	371,043	425,991	107.1	93.3
Austria	722	742	762	97.3	94.7	8,993	8,616	9,224	28,102	26,924	28,824	104.4	97.5
Belgium	691	714	716	96.8	96.5	11,440	17,050	16,114	35,749	53,280	50,355	67.1	71.0
Bulgaria	256	268	314	95.6	81.6	2,515	2,041	2,284	7,859	6,379	7,137	123.2	110.1
*Denmark	...	909	953	...	..	. .	23,043	21,924	...	72,008	68,511	...	...
Spain	w) 1,358	1,848	1,935	—	—	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.8
Estonia	343	342	355	100 3	96.8	2,668	2.964	3,209	8,336	9.262	10,028	90.0	83.1
*Irish Free State	...	614	623	..	..	...	13,792	13,284	...	43,099	41,513	...	...
Finland	1,087	1,163	1,126	93.5	96 6	14,449	13,424	14,893	45,153	41,951	46,540	107.6	97.0
*France	...	8,101	8,384	...	..		98,228	104,137	...	306,960	325,425	...	...
Engl. and Wales	1,417	1,418	1,581	99.9	89 6	23,654	25,491	27,655	73,920	79,660	86,422	92.8	85.5
Scotland	828	827	847	100.1	97.7	14,202	15,254	15,026	44,380	47,670	46,956	93.1	94.5
*Northern Ireland	265	273	289	97.2	91.6	.	5,828	5,955	...	18,212	18,608	..	...
Greece	...	337	339	...	...	2 632	2,209	2,179	8,226	6,903	6 810	119.2	120.8
Hungary	521	502	581	103.7	89.6	5,395	5,421	6,120	16,860	16.941	19,126	99.5	88.2
*Italy	...	1,047	1,133	...	...	.	11,358	12,236	...	35,495	38,237	...	...
*Latvia	...	822	777	..	...	. .	8,508	7,613	...	26,587	23,791	...	..
*Lithuania	883	841	880	105.0	100.3	.	8,807	8.351	...	27,523	26,097	...	..
Luxemburg	66	66	70	100.0	94 5	940	984	981	2,938	3,075	3,067	95 5	95 8
*Norway	..	215	236	...	. .		4,010	3,904	...	12,532	12,201	..	...
Netherlands	318	316	350	100.7	90.9	5,787	6,202	6,346	18,085	19,380	19,830	93 3	91 2
Poland	5,582	5,521	5,434	101.1	102.7	57,982	57,275	54,153	181,192	178,982	169,226	101.2	107 1
*Portugal	...	516	425	...	. .	..	2,131	2,034	..	6,660	6,356	..	. .
Romania	2,002	1,970	2,178	101·6	91.9	16,535	13,089	16,928	51,671	40,904	52,899	126 3	97 7
Sweden	1,668	1,654	1,611	100.8	103.6	26,786	28,095	24,928	83,706	87,796	77,900	95.3	107.5
Switzerland	26	25	40	103.5	64 9	456	445	715	1,427	1,392	2,235	102 5	63.8
Czechoslovakia	1,895	1,921	2,014	98.6	94 0	26,882	22,644	30,655	84,007	70,763	95,795	118.7	87 7
*Yugoslavia	...	942	948	. .	...	. .	6,126	6,717	...	19,144	20,992	...	...
Total Europe	*25,988*	*26,527*	*28,366*	*98.0*	*91.6*	*360,717*	*352,536*	*383,182*	*1,127,234*	*1,101,674*	*1,197,429*	*102.3*	*94 1*
*U. S. S. R.	...	45,271	42,248	...	...	.	402,746	322,460	...	1,258,573	1,007,681	...	...
Canada	13,118	14,096	13,301	93.1	98.6	93,317	134,078	120,468	291,617	418,995	376,462	69.6	77.5
United States	3) 34,440	4) 39,924	4) 37,556	86.3	91.7	248,640	382,934	315,212	777,000	1,196,668	985,039	64.9	78.9
Total North Amer.	*47,558*	*54,020*	*50,857*	*88.0*	*93.5*	*341,957*	*517,012*	*435,680*	*1.068.617*	*1,615,663*	*1,361,501*	*66.1*	*78.5*
*Syria and Leb.	28	30	30	93.3	94 7	.	246	264	...	768	825	...	...
*Turkey	a) 706	566	395	—	—	5) 5,266	5,114	3,333	5) 16,456	15,983	10,414	—	—
Algeria	477	434	516	110.0	92.5	3,307	2,332	3,525	10,334	7,288	11,014	141.8	93.8
French Morocco	74	70	73	104.9	101.6	434	340	580	1,357	1,062	1,811	127.8	74.9
*Tunisia	...	74	77	...	...	...	397	534	...	1,240	1,667	...	...
Total Africa.	*551*	*504*	*589*	*109.3*	*93.7*	*3,741*	*2,672*	*4,105*	*11,691*	*8,350*	*12,825*	*140.0*	*91.1*
*Argentina	7) 2,965	7) 2,953	7) 3,631	100.4	81.7	...	11,464	20,977	...	35,825	65,553	...	...
*Chile	...	244	197	...	...	..	..	1,858	...	...	5,806	...	...
*Uruguay	...	236	160	...	...	...	1,282	684	...	4,007	2,139	...	...
*New Zealand	...	78	81	...	...	...	1,321	1,317	...	4,128	4,115	...	...
TOTALS	**74,097**	**81,051**	**79,812**	**91.4**	**92.8**	**706,415**	**872,220**	**822,967**	**2,207,542**	**2,725,687**	**2,571,755**	**81.0**	**85.8**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — (*) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including Saar Territory with a very small production — 2) Including spelt. — 3) Area expected to be harvested. — 4) Area harvested. — 5) Incomplete data — 6) Cultivation by Europeans only. — 7) Area sown. — 8) Barley and meslin.

Production of wheat in Europe.

Years	Area (thousand acres)	Production (million bushels)	Yield (bushel per acre)
1936 (estimate)	76,400	1,470	19.2
1935	78,600	1,573	20.0
1934	77,600	1,549	20.0
1933	77,900	1,748	22.4
1932	75,400	1,490	19.8
1931	76,100	1,437	18.9
1930	73,600	1,360	18.4
1929	70,200	1,450	20.7
1928	71,400	1,409	19.8
1927	71,200	1,274	17.8
1926	69,900	1,216	17.4
1925	69,700	1,404	20.1

The results are striking when the the figures for the exporting countries (Bulgaria, Hungary, Romania, Yugoslavia, Poland and Lithuania) and those of the other countries are considered separately

	European exporting countries			Other European countries		
	Area million acres)	Production (million bushels)	Yield (bushels per acre	Area million acres)	Production (million bushels)	Yield (bushels per acre)
1936	25.2	456	18.1	51.2	1,014	19.8
1935	25.5	386	15.1	53.1	1,187	22.4
1934	24.5	339	13.8	53.1	1,210	22.8
1933	24.5	455	18.6	53.4	1,293	24.2
1932	23.7	280	11.8	51.7	1,210	23.4
1931	26.0	463	17.8	50.1	974	19.4
1930	24.7	448	18.1	48.9	912	18.7
1929	22.5	378	16.8	47.7	1,072	22.5
1928	23.2	435	18.7	48.2	976	20.2
1927	22.5	338	15.0	48.7	936	19.2
1926	22.2	349	15.7	47.7	867	18.2
1925	22.0	368	16.7	47.7	1,036	21.7

The yields secured in the exporting countries in 1936 rank with the highest of the last twelve years, those in the importing countries are among the lowest.

Official information and estimates for the whole of the U. S. S. R are not available but something is known as to the situation in some regions of Ukraina and the North Caucasus; from this it appears that the effects of the long drought were successfully neutralized by improved cultural methods and that the crops in these areas will exceed the expectations of the Plan.

The first official estimates of grain production in Canada, and new estimates of production in the United States based on the situation at the beginning of September, make it possible to outline the North American crop results for the season with reasonable accuracy.

In the case of wheat, the winter crops are fair, with yields below the average but practically equal to those of last year. The spring crops in both countries were seriously injured by the drought which affected large and important areas of production.

This was especially the case in Canada where the total outturn of wheat, now officially estimated at 233 million bushels, though larger than the forecasts based on the condition of the crops at the beginning of August, is 16 per cent. smaller than the crop of last year, which was itself very light. The drought of this year was more extensive and severe than any previously recorded and caused an even greater reduction in the spring wheat yields than the combined effects of rust, drought and frost in 1935.

The yield per acre of spring wheat is the lowest obtained in the last 29 years, and the records must be searched back to 1919 before a lower wheat production for the Dominion can be found, while in that year the seeded acreage was only three-quarters of that of 1936.

In the United States also, the spring wheat crop of this year (111 million bushels) was very poor, and it ranks as the lowest of the last 25 years, after the disastrous crop of 1934. Notwithstanding the better results of the winter crops, the total wheat production of the United States (630 million bushels) is only fractionally larger than the short crop of 1935 (623 million bushels).

The combined wheat production of Canada and the United States, according to these estimates, is thus about 863 million bushels, as against 901 millions in 1935, and an average of 1,080 millions in the previous 5 years. The quality of the product appears to be very good and partly offsets the diminished production.

The total production of Asia (China, Iran and Turkey excluded) is a little below that of last year but about equal to the average of the preceding five years.

Official information for China indicates that production will be appreciably above the low outturn of 1935 and the average of the preceding four years.

North African production shows a decrease of 16 per cent. from last year and of 20 per cent. from the quinquennial average

To sum up, the data available for 1936 and the probable estimates for the countries which have not yet issued figures, indicate that total production in the northern hemisphere (excluding China, Iran, Turkey and the U. S. S. R.) is about 2,900 to 2,920 million bushels.

The 1936 figures are provisional and subject to correction but it is clear that the total harvest of the year of the countries considered is the lowest of the period 1930-36, approaching the low results of 1934 and ranking well below those of 1935 and the average of the preceding five years.

The areas sown in Australia and Argentina show increases on last year (5 per cent. and 18 per cent. respectively), but they are appreciably smaller than the average acreages of the preceding five years. The Government of Australia reported in the middle of the month that the wheat crops of Western Australia and South Australia had a healthy appearance but they were late for the season and in neeed of rain; crop condition in New South Wales wass good; damage resulting from gales was reported in Victoria but the crops in central areas were in good condition.

Wheat production in the northern hemisphere (1).

(in millions of bushels)

Years	Europe	North America	Asia (2)	North Africa	Total (1)
1936 (*)	1,470	876	470	96	2,912
1935	1,573	911	485	114	3,083
1934	1,549	813	456	136	2,954
1933	1,748	846	474	110	3,178
1932	1,490	1,210	434	129	3,263
1931	1,437	1,275	467	118	3,297
1930	1,360	1,319	506	107	3,292
Average 1930-1934	*1,517*	*1,092*	*467*	*120*	*3,196*

(*) Provisional estimate. — (1) Excluding the U. S. S. R., China, Iran and Turkey. — (2) Excluding China, Iran and Turkey.

In Argentina, according to a cable of 19th September, the sowing of wheat was practically finished and the seedings were growing well, but rains were needed.

Rye. — The production in Europe in 1936 is nearly equal to that of 1935, but about 5 per cent. below the level of the preceding quinquennium. Taking the period 1930-36, the production of 1936 is nearly equal to that of 1934, and larger only than the very short crop of 1931. The crop in Germany, was larger than that of 1935, and above the average, while in Poland it was slightly smaller, and in Czechoslovakia appreciably smaller. An average crop was secured in Hungary, the Netherlands and Finland, a good outturn in Romania and Greece, but in all the other countries short crops were obtained.

The total production of Canada and the Unites States is distinctly low, amounting only to about one half of that of 1935, and about four-fiths of the average for the five preceding years. The relative decline is about the same in both countries, and is in part the result of a reduction in the area under rye, but it is mostly due to the unfavourable weather conditions of the season.

Rye production in the northern hemisphere (1).

(in millions of bushels)

Years	Europe	North America	Total (1)
1936 (*)	874	32	906
1935	890	69	959
1934	894	22	916
1933	1,004	26	1,030
1932	933	48	981
1931	776	39	815
1930	925	68	993
Average 1930-1934	*906*	*40*	*946*

(*) Provisional estimate. — (1) Excluding the crop of the U. S. S. R. and Turkey.

The total production of the northern hemisphere, not including the U. S. S. R. and Turkey, is only about 5 per cent. below that of 1935, and the quinquennial average.

Barley. — European production of 1936 appears to bə almost equal to the 1935 harvest which was itself comparatively light, but it is about 6 per cent. below the level of the preceding 5 years. The crops were average in most European countries; the best results, to mention only the most important producing countries, vere obtained in Germany, Romania and Poland, but in Czechoslovakia the results are noticeably smaller than those of 1935 and the average.

In North America the total crop amounts to only about 60 per cent. of the plentiful yield of 1935, but it represents 75 per cent. of the quinquennial average. The total crop of the two Asiatic countries (Chosen and Japan) is roughly average. The North African crops, similarly, are about average. The total production of the northern hemisphere, exclusive of the U.S.S.R., India, Turkey and certain other Asiatic countries, owing to the short crops of North America, is roughtly nine-tenths of the 1935 crop, and about the same proportion of the preceding quinquennal average.

Barley production in the northern hemisphere (1).

(in millions of bushels)

Years	Europe	North America	Asia (2)	North Africa	Total (1)
1936 (*)	703	220	119	106	1,148
1935	698	367	133	101	1,299
1934	717	184	119	133	1,153
1933	776	220	115	106	1 217
1932	770	388	124	110	1 392
1931	689	270	119	106	1,184
1930	758	438	115	92	1,403
Average 1930-1934	*743*	*299*	*118*	*109*	*1,269*

(*) Provisional estimate. — (1) Excluding the U S S R., India, Turkey and some other Asiatic countries. — (2) Chosen and Japan only

Oats. — The 1936 production in Europe is the lowest of the last 7 years. It is 3 per cent. smaller than the rather low outturn of last year, and about 10 per cent. below the average of the previous 5 years. The decrease from the average is mainly the outcome of the gradual reduction in the acreage of this crop in Europe.

North American production is about a third below the fairly good crop of 1935, and about a fifth below the average. The main cause of the reduction has been the very adverse conditions of the year. The total 1936 production in the northern hemisphere, exclusive of the U. S. S. R., owing the large proportion contributed by North America, is about one-fifth below the level of last year and about one-sixth below the average.

Oat production in the northern hemisphere (1).

(in millions of bushels)

Years	Europe	North America	Total (1) (2)
1936 (*)	1,612	1,069	2,721
1935	1,667	1,016	3,328
1934	1,695	883	2,604
1933	1,936	1,060	3,038
1932	1,853	1,667	3,555
1931	1,695	1,473	3,210
1930	1,715	1,727	3,493
Average 1930-1934	1,770	1,262	3,180

(*) Provisional estimate. — (1) Excluding the U. S. S. R — (2) Including the Asiatic and North African crops.

Germany August opened cold and wet but warmer weather set in later and continued throughout the month Rainfall was somewhat below average, except in Hanover, Silesia and Bavaria, but, though light, it was unevenly distributed and hampered and delayed the bringing in of cereals and the crops were not entirely under cover at the beginning of September.

Belgium The rains ceased after 5 August and fine weather made it possible to complete harvesting with only a slight delay on previous years. Much of the cereal crops, which had already been laid by the high winds and heavy rain of July, suffered during harvest which took place in wet conditions The quality of the crop is not fully satisfactory in all cases

Denmark No estimates had been made up to the end of August of the cereal crops According to the system of the Institute, crop condition on 1 September was calculated as follows wheat 90 (as against 93 on August this year), rye 88 (91), barley 82 (86) and oats 82 (85)

Estonia The weather of August was in the main favourable for growth Drought was experienced only locally. Harvesting was well forward at the end of August and was progressing rapidly.

Meslin production is estimated at 1,786 000 centals (3,079 000 bushels) against 1,915,000 centals (3,301,000 bushels) in 1935 and an average of 1,857,000 centals (3,201,000 bushels) in 1930-34

Irish Free State. The first ten days of August were rainy and unsettled thereafter, until the end of the month, the weather was dry and warm with bright sunshine. Crops made satisfactory progress

The cereal harvest is slightly late owing to weather conditions.

Finland: Favourable harvesting weather prevailed in August and operations were well forward at the end of the month.

Meslin production was 597,000 centals (1,030,000 bushels) against 519,000 centals (894,000 bushels) in 1935 and an average of 495,000 centals (854,000 bushels) in 1930-34 (115.2 and 120.6).

France: A return of fine weather, which, except for some stormy spells, lasted from the middle of August to the middle of September facilitated harvesting which was completed in much better conditions than those in which it was begun. Threshing is in full swing and some areas have already finished. Considerable damage has resulted from the bad weather of the year but the yield appears to be better that what was expected. The recent fine weather improved the quality of the grain and the bushel weight.

The rains of the middle of September brought about better conditions for winter ploughing and for the first sowings

Great Britain and Northern Ireland. The outstanding feature of the weather during August in England and Wales was the pronounced deficiency of rainfall. During the first half of the month dull conditions with temperatures below normal prevailed generally, but subsequently bright sunshine and high temperatures were experienced, the amount of sunshine for the whole month being above average in most districts.

The cereal harvest become general about the middle of the month, but harvesting operations were expected to be protracted, as in many areas difficulty in cutting was experienced owing to the crops having been laid by the weather.

Wheat greatly improved in condition during the last ten days of the month but, as a result of the abnormally wet spring and the lack of sunshine throughout the growing season, it was anticipated that the yield and quality would not be up to the average of recent years; it was reported that in some districts the tops of the ears were not well filled and that the grain was on the small side. The barley crop also improved considerably during the last half of the month and was probably the best of the corn crops, given favourable weather conditions the quality was expected to approach the average. Oats ripened quickly during the hot spell but the yield was not expected to be heavy; the condition and quality of the grain is somewhat below average, while spring sown oats were in some districts reported to be rather poor and short in the straw.

Rain was frequent in Scotland in the first part of August and harvesting was retarded or undertaken in difficult conditions Fine weather set in towards the end of the month but, on the whole, August was more of a growing than a ripening month The quality of the crops is about average

The position of the wheat crop in Northern Ireland is satisfactory; winter sown wheat was saved in good time and in good condition and the yield is expected to be up to the average. The barley crop was considerably helped by the warmer and drier weather of August. Half the oat crop was in stook by the end of August; the yield was expected to be average.

Hungary: During the three weeks between 8 and 29 August the temperature was in general normal, while the quantity of rain which fell was below the average almost everywhere.

Threshing of cereals was almost finished by the end of the period under review. The specific weight of cereals fluctuates as follows.—

Wheat	from	77.5	to	82.0	kg
Rye	»	68.0	»	74.0	»
Barley	»	59.0	»	68.0	»
Oats	»	35.0	»	50.0	»

In many localities the ears of spring barley and oats have not matured owing to the excessive moisture during the ripening period

Latvia: The temperature was below normal almost throughout August. Rain fell especially during the third decade of the month, and distribution was uneven. On August

15 crop condition was classified as average in the majority of cases, in many cases as bad (particularly oats). Drought and excessive heat are the principal causes of the unsatisfactory condition of the crops.

Lithuania: The first half of August was dry and sunny. There were some rains in the second half but heavy rains came only at the end of the month. Harvesting conditions were excellent and operations were two weeks earlier than last year. Owing to the drought, production is a little below last year's figures; quality, however, is good.

The meslin area this year was 271,000 acres against 265,000 acres in 1935 and an average of 218,000 acres in 1930-34 (102.4 % and 124.3 %).

Luxemburg: Part of the cereal harvest was done in adverse conditions and quality suffered severely. Meslin production is 80,000 centals (137,000 bushels) against 76,000 centals (131,000 bushels) in 1935 and an average of 127,000 centals (218,000 bushels) in 1930-34 (104.7 and 62.9).

Norway: The cereal yield had not been estimated by the end of August; crop condition was as follows.—

	1-9-36	1-8-36	1-9-35
Winter wheat	91	95	95
Spring wheat	100	100	105
Winter rye	92	92	94
Spring rye	96	96	96
Barley	99	102	100
Oats	98	99	98
Meslin	100	101	104

Netherlands. The condition of the cereal crops, though satisfactory in the middle of July, deteriorated subsequently owing to excessive rainfall and at harvest time the crops were laid over large areas. There were frequent cases ot germinating in the stook.

Most of the wheat was saved by the middle of August but the yield and quality are not entirely satisfactory for the reasons mentioned above.

Much of the rye germinated in the stook, the quality of the grain is disappointing and the yield is below the average. Barley suffered less than the other cereals and the yield is normal. Oats were mostly in the stook at the middle of August and the quality fell off considerably. The yields in Zealand, however, are satisfactory. The condition of the barley crop in similar to that of oats.

Romania: Harvesting of cereals was finished in good conditions. The quality of the crops is generally good.

Switzerland: Weather continued changeable in the first half of August with a predominance of wet conditions. The subsequent improvement made it possible to complete the harvest which had been seriously impeded by the bad weather of the year. The hectolitre weight of wheat and rye is particularly lighter than in previous years.

Czechoslovakia: In July the weather was hot and damp, while in August it was rather cool and damp.

Owing to the rainy weather the harvest was laborious and costly, as cereals, a part of which had lodged before harvesting was begun, lodged still more in consequence of the further rains, with the result that in many cases they had to be hand cut. The work of harvesting was often interrupted by heavy rains and was thus prolonged.

In some of the higher regions where the rainy period was longer, harvesting is still in progress, especially in the case of barley. As a consequence of the unfavourable weather conditions during the ripening period of winter cereals, the grain yield of winter wheat and winter rye is worse as regards both quantity and quality than was expected before harvesting commenced. According to estimates received from reporters, it is to be expected that production of winter wheat and winter rye will be considerably less than last year. The quality of the grain will be inferior, the grains themselves being moister and lighter in weight. The grain of the hard wheat varieties is not well formed. Better results will be obtained for winter cereals in the lower-lying districts, especially in Moravia and Slovakia, where harvesting had been completed before the commencement of the rains. Threshing of harvested cereals is still in progress and is being carried out without delay. There is much straw which is not of very good quality. It is reported that the spring cereal crop should give better results. The crop of oats is expected to be relatively the most plentiful.

Autumn field work has also been delayed on account of the late harvesting of cereals and owing to the bad weather

According to the most recent estimate, the area under meslin this year was about 15,500 acres against 14,400 in 1935 and 19,800 on the average of the five years ending 1934; percentages 107 2 and 77 9 The corresponding production is estimated at about 193,700 centals (333,900 bushels) against 219,000 (377,600) in 1935 and 269,500 (464,700) on the average of the five years ending 1934, percentages, 88.4 and 71 9.

Yugoslavia The weather in August was almost continuously sunny, dry and hot, there were only a few wet days. The results of threshing, which took place under favourable conditions, have confirmed the forecasts of an abundant harvest of good quality The quality of the wheat, according to the reports of 350 correspondents of the Ministry of Agriculture, is considered to be good or very good, with very rare exceptions

The damage done to the wheat by rust is insignificant, throughout most of the country it fluctuates from 2-10 per cent, in some communes it reaches 25-40 per cent. and in only one commune does it reach 60 per cent of the harvest.

U S. S. R. · During the second half of August there were plentiful rains in Ukraina and in western areas of the country In the first decade of September there were rains also in other parts of the Union except in the south-west where the weather was predominantly dry.

By 10 September an area of 198,172,000 acres, or 92 per cent. of the Plan, had been harvested as against 195,705,000 acres, or 94 per cent, at the same date last year. In parts of the Asiatic territory, particularly, in Eastern Siberia, harvesting is considerably backward owing to persistent rain

Estimates of the production of the various crops and of total cereal production are at present unavailable; general information on the crop situation is also lacking There are, however, some indications on the cereal harvests of Ukraina and the North Caucasus region. A recent article in *Izvestia* by the People's Commissar for Agriculture states that in Ukraina more than 7,000 collective farms have secured a yield of cereals of 12 centals per acre, last year only 4,000 collective farms obtained a yield of these dimensions. In the Dniepropetrovsk, an important cereal zone of Ukraina, the average yield is 12 centals per acre and the total cereal crop of the year is estimated at about 99 million centals against the 93 millions anticipated in the Plan and 55 millions secured last year. In 1933, a bumber cereal year, the total production of the Dniepropetrovsk was 103.2 million centals. In the Odessa region the average yield is estimated to be 10 4 centals per acre, an increase on previous years, and total cereal production is estimated to be 29 to 33 million centals larger than that of last year. The *Socialistitcheskoie Zemledielie*,

the organ of the People's Commissar for Agriculture, states that the cereal production of Ukraina will surpass the expectations of the Plan, this is the result of better cultural methods as weather conditions in Ukraina this year have been unfavourable for grain crops.

In the North Caucasus region, where there was a severe and continuous drought, the production of some crops is not below that of last year when conditions were favourable. Thus, in all parts of this region, the wheat crops are larger this year. The results here, as in Ukraina, are due to the timely and energetic steps taken to resow the damaged areas and to better methods of cultivation.

The area of winter cereals sown up to 10 September of this year is 63,411,000 acres (67 per cent. of the Plan) against 58,992,000 acres (63 per cent.) at the same date last year.

Argentina: The monthly report published on 19 August by the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires gives the following information on the wheat crop.

Sowings were late in the north of the Province of Buenos Aires and a smaller acreage was expected. The seedlings were in normal condition. Elsewhere in the Province, crop condition was very good but rains were needed in the south-east

In Santa Fé an increase on last year's area was expected in the south. Crop condition was good everywhere

The general condition was very good also in Córdoba and the sown area in eastern and central parts is above the average.

In Entre Rios growth was unsatisfactory and rather backward There is an appreciable decline in the area, particularly in northern central and eastern districts.

Crop condition was good in the National Territory of the Pampas except in the north-east. The low temperatures prevented a too exuberant growth

Germination was normal in Santiago del Estero and the crops were growing well except in Belgrano where there was a shortage of moisture

In San Luis wheat is good in appearance on the whole. Frost damage occurred in some areas.

(Telegram of 21 September): The sowing of wheat is practically finished and the crop is developing normally. Rains, however, are needed

Canada: The preliminary estimate of the total wheat crop of the Dominion, issued in September, is 232,973,000 bushels compared with 277,339,000 bushels in 1935 and an average of 348,560,000 bushels in the years 1930-34 The 1936 drought was more extensive and severe than any previously recorded and caused an even greater reduction in the spring wheat yields than the combined effects of rust, drought and frost in 1935. A lower total wheat production for the Dominion has not been recorded since 1919 while in that year the seeded acreage was only three-quarters of the 1936 level The average yield per acre is the lowest for 29 years The 1936 crop, however, is very high in grade and quality and this partly offsets the diminished production

United States: The September crop report of the Department of Agriculture places the total wheat production of 1936 at 630 million bushels (378 million centals) and thus reduces the August estimate by 3 million bushels (1 8 million centals). At this figure, the crop is 1.1 per cent. larger than the light outturn of 1935 but 13 9 per cent. below the 1930-34 average.

Temperatures continued abnormally high during the first week of September between the Mississippi Valley and the Rocky Mountains. There were, however, widespread rains in this area as well as east of the Mississippi, the south-west only

experiencing no real relief from the drought The soil was consequently in a better state for ploughing over much of the Ohio, Mississippi and Missouri Valleys and in the Pacific North-West Section.

In the second week of the month weather was again hot to the east of the Rockies but there were good rains in many areas. The sowing of winter wheat made progress in the northern parts of the belt

Japan· As a result of good weather, spring wheat and spring barley were in normal condition on 1 September

Palestine· Except for a few warm days, cool weather with abundant dewfall prevailed in August The sky was cloudy on a few occasions, and very light local showers fell in places Progressive farmers started in July to summer plough their fields and tractors are being used in some cases. All cereal crops were harvested threshed and stored at the normal time. Crops suffered from the deficiency of late rains and some from hot winds when they were in the milky stage With the exception of barley, the harvest on the whole was average. The wheat crop is estimated to be larger than that of last year, but barley is much smaller

Syria and Lebanon In Syria the weather was changeable The temperatures were rather high and there was no rainfall The state of the crops was normal though the early heat had damaged a proportion of the cereals Estimates of production cannot be made at present In Lebanon weather conditions were favourable for the crops In Latakia they were normal, production was average and equal to that of 1935 In Jebel ed Drûze the weather conditions were rather changeable The harvest is finished and production is 25 per cent below that of last year, that is a little below the average In some villages damage was caused by field-mice, with losses varying between 25 and 40 per cent

Kenya· Except in some districts where the weather was showery, July was a cool and dry month throughout the country Prospects for the coming crops continued to be favourable

French Morocco Great heat was experienced in the first ten days of August but afterwards temperatures were not excessive, the average being below that of normal years. The present estimates confirm the expectations of a poor harvest of wheat, particularly of hard wheat The grain, on the whole, is of poor quality but some important crops, particularly of soft wheat, show good quality. Barley is satisfactory in quantity and quality

Tunisia July was characterised by normal, or lower than normal temperatures The cereal harvest is completed Yields were even below the expectations that had been formed. There was practically no crop in the South

MAIZE

Austria· Ear formation leaves much to be desired owing to the frequent rains during the flowering period

Hungary. Towards the end of August maize was high and of a fresh green colour. Cob and grain formation is very good. Cobs are well-developed and abundant. During the period under review the early varieties were being harvested, while the later varieties were ripening. A good crop is expected

Italy: The good forecast for *maggengo* has been confirmed; in some regions, however, particularly in Central Italy, the crop has suffered from drought; crop condition of *cinquantino* is very good.

Maize.

COUNTRIES	AREA					CROP CONDITION †)								
	1936	1935	Average 1930 to 1934	% 1936		1 IX 1936			1 VIII-1936			1-IX-1935		
	1,000 acres			1935 = 100	Aver = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria	..	162	156	...	...	2 4	—	—	2 4	—	—	2 9	—	—
Bulgaria	1,508	1,499	1,739	100 6	86 7	—	—	—	—	—	—	—	—	—
France	796	853	840	93 4	94 8	—	—	—	—	—	—	—	—	—
Hungary	2,832	2,843	2,765	99 6	102 5	—	—	—	—	—	—	—	—	—
Romania	12,963	12,773	11,757	101 5	110 3	—	—	—	—	—	—	—	—	—
Czechoslovakia 1)	212	194	2) 222	109 1	2) 95 4	—	—	—	—	—	—	—	—	—
Canada	163	168	144	97 2	113 0	—	—	74	—	—	—	—	—	94
United States	3) 98,517	4) 95,333	4) 103,284	103.3	95 4	—	—	40 5	—	—	46 8	—	—	67 9
French Morocco	1,043	959	848	108 7	122 9	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 621 — *a*) Above the average — *b*) Average — *c*) Below the average — 1) Crop grown alone — 2) 1934 only — 3) Area expected to be harvested — 4) Area harvested

Romania As a result of good rains, maize showed a much better condition on 26 August In June and July the crop suffered from drought

Czechoslovakia The maize crop in Slovakia is very promising

Yugoslavia In spite of the rather dry weather which prevailed during August weather conditions were favourable to the crop, which was well provided with moisture, owing to the abundant rains in July.

The maize crop is expected to be very abundant this year and will perhaps be more so than in any other year since the founding of the Kingdom

Argentina (Telegram of 21 September) Maize threshing made slow progress

Surinam The maize crop had been brought in by the end of the second quarter. Owing to excessive rains, it was not entirely satisfactory

Indo-China: The main harvest in Tonkin is finished The results in Annam are satisfactory but in Cochin-China the yields are distinctly below those of previous years. Very high yields were expected in all parts of Cambodia where the rice could ripen before the flooding of the Mekong.

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area.

	1936 acres	1935 acres
Area harvested in July	304,100	367,500
Area harvested from 1 January to 31 July .	3,744,700	3,511,000
Area of standing crops at the end of July .	1,134,000	1,209,400

Palestine: **Late-sown maize grown under irrigation has given satisfactory germination and is making steady growth; yields are expected to exceed those of last year**

Egypt: Sowing of the *nili* maize crop was completed in Lower and Middle Egypt. Late sowing was carried out in Upper Egypt. Growth is satisfactory. Flowering is progressing in the early sown cultivation and in some of the general cultivation in the South of the Delta where formation of the ears was observed in certain areas Watering, hoeing, thinning and manuring are in progress.

Production of maize.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
Hungary . . .	57,193	31,269	40,848	102,130	55,838	72,944	182.9	140.0
Czechoslovakia 1) .	3,716	2,581	2) 3,539	6,635	4,609	2) 6,319	144.0	2) 105.0
—								
United States . .	816,480	1,283,312	1,282,974	1,458,000	2,291,629	2,291,025	63.6	63.6
—								
French Morocco .	5,278	3,072	3,496	9,425	5,486	6,242	171.8	151.0

1) Crop grown alone — 2) 1934 only

Tanganyika: As revised at 1 June, 1936, the quantity of maize available for sale was estimated at 538,000 centals (961,000 bushels)

RICE

Italy: The hot weather which prevailed during the second half of August was favourable to the growth of rice, and crop condition is in general good.

United States According to the estimate of 1 September, the production of rice this year is about 19,845,000 centals (44,100,000 bushels) against 17,159,000 centals (38,132,000 bushels) in 1935 and 18,707,000 centals (41,572,000 bushels) on the average of the five years ending 1934; percentages, 115,7 and 106.1.

Surinam: The rice crops were in good condition in all parts during the second quarter of 1936 and a good yield was anticipated

British Guiana: Production of paddy in 1935-36 was estimated in June at 1,916,000 centals (4,257,000 bushels) as against 1,235,000 (2,743,000) in 1934-35 and 1,627,000 (3,615,000) on the average of the preceding five seasons. Percentages: 155 2 and 117.8.

Taiwan: The second rice crop suffered some damage from insects. The crop is growing normally.

Indo-China: Work in the fields and growth and ripening of the various varieties are progressing in good conditions in all parts.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area:—

	1936 acres	1935 acres
Area harvested in July—		
Wet padi	807,600	600,000
Dry padi	7,200	7,900
Area harvested 1 January to 31 July—		
Wet padi	7,007,500	6,876,800
Dry padi	941,200	940,500
Area of standing crop at the end of July —		
Wet padi	1,518,700	1,591,100
Dry padi	36,800	17,500

British Malaya During June hot and dry weather prevailed throughout the country and the rainfall was below the average for the month at most of the stations from which records are received. Isolated exceptions were the coast around Malacca town and south Johore, Temerloh and Pekan in Pahang, and Kota Bahru in Kelantan, where precipitation was well up to or in excess of the average

Ploughing proceeded under favourable conditions in Kedah, except for Baling district, and some nurseries were established in Kota Star and Kulim districts In Province Wellesley excessive water in some of the deeper areas of the north somewhat delayed the establishment of nurseries. In the Bagan Serai area of Krian (Perak) and in the north-west of this district clearing and establishment of nurseries was in progress. Preparation of the land was nearing completion in Bruas sub-district and some sowing of nurseries had been done.

Transplanting was general in the early areas of Batang Padang district In Selangor, transplanting was well forward in the northern padi areas of Ulu Langat and commenced in the southern part of the district. Felling and clearing continued at Panchang Bedena. In Negri Sembilan transplating was completed in certain areas and well advanced in some others. In Malacca and Pahang transplanting was progressing. In Kelantan, ploughing of the dry padi areas was nearing completion and short term wet padi was sown in some localities. In Johore planting was well advanced in the Endau and Segamat districts

Egypt The growth of *sefi* rice was satisfactory owing to the favourable weather and abundance of the water. The shooting of the ears is advancing in the early and general cultivations. Grain formation started in some cultivations Watering and drainage were carried out in all cultivations, whereas in the late cultivation the operations in course are weeding, manuring and transplanting. Sowing is over in the early and general cultivations of *nili* rice and is progressing in the late areas. Irrigation, drainage, weeding and transplanting are going on.

Tanganyika: As revised at 1 June, 1936, the quantity of paddy available for sale was estimated at 137,000 centals (305,000 bushels), that of rice at 283,000 centals (628,000 bushels).

POTATOES

Germany: The wet weather of the first half of Angust was unfavourable for the potato crops, particularly to those on heavy soils. Some *Phytophtora* damage occurred. Flowering was adversely affected on heavy soils owing to the rotting of the tubers. On other soils it was normal.

Potatoes.

COUNTRIES		AREA 1936	AREA 1935	AREA Average 1930 to 1934	% 1936: 1935 = 100	% 1936: Aver = 100	CROP CONDITION †) 1-IX 1936 a)	1-IX 1936 b)	1-IX 1936 c)	1-VIII-1936 a)	1-VIII-1936 b)	1-VIII-1936 c)	1-IX-1935 a)	1-IX-1935 b)	1-IX-1935 c)
		1,000 acres													
Germany	s)	1) 331	325	600	—	—	—	—	—	2 7	—	—	—	—	—
	t)	.	6,458	6,469		. .	2 5	—	—	2 5	—	—	—	—	3.1
Austria		.	494	490		.	2 6	—	—	2 3	—	—	2 9	—	—
Belgium		402	403	413	99 8	97 4	—	—	—	—	—	—	—	—	—
Bulgaria		42	36	34	116 9	125 0	—	—	—	—	—	—	—	—	—
Denmark		..	186	175			—	—	97	—	—	97	—	—	86
Estonia		183	182	170	100 6	107 9	—	—	—	—	—	87	—	—	96
Finland		215	204	191	105 4	112 4	d)	—	—	—	—	—	—	c)	—
France		3,465	3,472	3,463	99 8	100 0	—	—	—	—	—	—	—	—	—
England and Wales		456	463	476	98 5	95 7	—	—	—	—	—	—	—	—	—
Scotland		133	132	139	101 1	96 0	—	—	—	—	—	—	—	c)	—
Northern Ireland		132	129	138	102 1	95 7	—	—	—	—	—	—	—	—	—
Hungary		726	695	711	104 5	102 2	—	—	—	—	—	—	—	—	—
Lithuania		442	435	423	101 5	104 5	120	—	—	123	—	—	—	—	—
Luxemburg		41	41	40	99 8	100 1	2 6	—	—	2 2	—	—	—	—	3 3
Norway			123	119			—	—	99	104	—	—	—	—	87
Netherlands		277	344	395	80 6	70 3	2)103	—	—	2)101	—	—	—	—	2) 90
Poland		.	6.998	6,742	.	.	2)3 4	—	—	2)3 5	—	—	2)3 2	—	—
Sweden		319	319	331	99 9	96 3	109	—	—	—	—	—	—	—	91
Switzerland		116	113	116	102 6	100 5	—	—	—	63	—	—	73	—	—
Czechoslovakia	s)	104	99	90	105 1	116 2	—	—	—	—	—	—	—	—	3 6
	t)	1,772	1,752	1,692	101 2	104 7									
—															
Canada		515	507	556	101 6	92 6	—	—	77	—	—	—	—	—	88
United States		3,217	3,551	3 426	90 6	93 9	—	—	—	—	—	—	—	—	—
—															
Algeria	s)	17	18	24	98 1	72 9	—	—	—	—	—	—	—	—	—
	t)	25	23	23	108 9	106 0	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals tables and note on page 621 — *a*) Above the average — *b*) Average — *c*) Below the average — *d*) Above the average — *e*) Average — *s*) Early potatoes — *t*) Late potatoes — 1) Including the Saar territory — 2) In the middle of the preceding month

Austria By the end of August the early potato crop had been almost entirely lifted everywhere The tubers are of variable size, but chiefly small Condition of the main crop is also very uneven At the time of writing the foliage was still fresh and green.

France The damage suffered by the potato crops as a result of the continual rains of this summer has resulted in a very uneven harvest The proportion which has rotted appears to be rather large, and a distinctly smaller production is to be expected

Great Britain and Northern Ireland Reports indicate that in some areas of England and Wales disease is more prevalent than usual and, owing to the wet weather experienced during June and July there are some doubts as to the keeping quality of the tubers. The crops in Scotland are in good condition but the prospects are less favourable in Northern Ireland where blight is more prevalent than usual.

Hungary. Lifting of early potatoes was in progress towards the end of August. The tubers are healthy and well-developed The condition of the main crop is good.

Italy· At the end of August the prospects for the potato crop were good

Latvia· Condition of the potato crop on August 15 was classified as average for the majority of cases and in many cases as good Drought is the cause of the unsatisfactory crop condition.

Lithuania. At the beginning of September a larger potato crop was expected than that of last year.

Production of potatoes.

COUNTRIES	British units			American units			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average = 100
	Thousand centals			Thousand bushels				
Germany . . . . *s*)	x) 33,864	28,790	63,700	56,439	47,982	106,164	—	—
Estonia	16,768	19,681	19,143	27,947	32,800	31,905	85.2	87.6
Finland	27,646	27,978	23,417	46,076	46,629	39,028	98.8	118.1
England and Wales . . .	61,376	64,490	69,091	102,293	107,483	115,151	95.2	88.8
Hungary	59,946	30,703	38,893	99,908	51,171	64,820	195.2	154.1
Luxemburg	4,303	3,196	4,236	7,171	5,326	7,060	134.6	101.6
Netherlands	48,722	58,624	68,343	81,802	97,704	113,903	83.1	71.3
Poland	707,025	716,543	677,552	1,178,351	1,194,214	1,129,231	98.7	104.3
Sweden	41,249	38,374	40,936	68,746	63,956	68,226	107.5	100.8
Switzerland	12,787	14,956	16,190	21,311	24,927	26,983	85.5	79.0
Czechoslovakia . . . . . *s*)	7,322	5,975	6,770	12,204	9,958	11,284	122.6	108.2
United States	187,200	232,607	221,944	312,000	387,678	369,907	80.5	84.3
Algeria . . . . *s*)	1,005	1,067	946	1,675	1,778	1,576	94.3	106.3

s) Early potatoes. — x) Including Saar territory.

Netherlands: The wet conditions caused a spread of *Phytophtora*, particularly among ealy potatoes for human consumption. The late crops were in good condition in the middle of August but the yield cannot be estimated at present.

Switzerland: The fine weather of the end of August and the beginning of September was of good effect in checking rot. A considerable proportion of the tubers had, however, been lost while, if wet conditions persist, further damage may be expected. Rotting is particularly serious in heavy soils but yields are somewhat better in light and permeable soils. The prospects have declined since the beginning of August.

Czechoslovakia: Generally speaking crop condition is good and foliage luxuriant and the plants have plenty of tubers. In several districts, however, the potatoes are beginning to suffer from rot on account of the excessive moisture. The final state of the crop will depend on future weather conditions.

Palestine: The lifting of all potatoes has been concluded and the crop was sold at remunerative prices.

Syria and Lebanon: Weather conditions in Lebanon and Latakia were favourable for the potato crops and production is expected to be above that of last year.

SUGAR

The condition of the sugar-beet crops improved, in many cases considerably, during August and the first half of September in all European Countries. The average sugar content, which was rather low up to last month in many countries, is now often above the normal both as a percentage and in total weight per root. This satisfactory outlook is the result of the weather conditions which had been wet and warm to the degree most suited to the growth of beet. The growth

1936-37 Season — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
2nd. WEEK OF AUGUST.												
Netherlands	15.7	—	1) 17.2	—	—	—	13.9	—	1) 13.9	2.2	—	2) 2.4
3rd. WEEK OF AUGUST.												
Belgium	14.4	—	13.8	30.1	—	26.2	13.1	—	13.4	1.9	—	1.8
4th. WEEK OF AUGUST.												
Germany	15.9	12.4	13.5	21.6	14.4	16.8	14.5	15.8	15.7	2.3	1.9	2.1
Denmark	12.5	12.3	9.8	16.8	10.9	13.0	14.2	17.2	13.6	1.8	2.1	1.3
France	12.3	9.7	13.3	24.8	10.2	17.0	14.0	15.7	14.5	1.7	1.6	1.9
Netherlands	19.7	—	1) 21.4	—	—	—	15.3	—	1) 15.7	3.0	—	1) 3.4
Czechoslovakia	15.8	9.4	13.3	17.8	9.4	13.7	15.7	17.7	15.9	2.5	1.7	2.1
5th. WEEK OF AUGUST.												
Germany	16.6	—	1) 13.9	20.6	—	1) 16.6	15.2	—	1) 16.0	2.5	—	1) 2.2
Belgium	17.8	14.0	1) 16.5	30.8	16.2	1) 25.2	14.1	15.3	1) 14.3	2.5	2.2	1) 2.4
Denmark	13.7	—	2) 12.0	15.5	—	2) 13.5	15.4	—	2) 14.5	2.1	—	1) 1.7
Finland	13.4	10.2	2) 14.3	16.7	18.4	2) 22.8	—	12.8	2) 12.3	—	1.3	2) 1.8
France	13.2	12.1	1) 13.8	25.0	12.5	1) 18.0	15.1	12.5	1) 15.5	2.0	1.9	2) 2.1
Czechoslovakia	16.9	10.5	14.5	17.2	9.7	13.6	16.7	18.2	16.4	2.8	1.9	2.4
1st. WEEK OF SEPTEMBER.												
Germany	18.3	18.7	15.7	21.3	13.8	16.9	16.2	16.3	16.0	3.0	2.2	2.5
Denmark	14.7	14.4	2) 13.3	15.6	11.6	2) 13.9	16.4	16.0	2) 14.9	2.4	2.3	2) 2.0
Finland	15.0	12.1	15.1	17.7	19.4	23.1	—	12.9	13.6	—	1.6	2.1
Poland	13.7	—	—	12.4	—	—	16.8	—	—	2.3	—	—
Czecoslovakia	18.0	11.4	15.5	16.2	10.0	12.8	16.9	18.0	16.8	3.0	2.0	2.6
2nd. WEEK OF SEPTEMBER.												
Germany	19.0	15.5	16.9	20.8	15.4	16.9	16.6	15.7	16.5	3.1	2.4	2.8
Belgium	20.4	17.9	2) 19.2	29.6	19.3	3) 21.4	14.9	15.0	3) 16.3	3.0	2.7	3) 3.1
Denmark	15.9	16.2	15.0	14.8	11.5	14.5	16.8	15.5	15.3	2.7	2.5	2.3
Finland	16.0	13.9	17.1	18.8	21.6	24.4	—	13.4	14.6	—	1.9	2.5
France	14.7	14.7	16.5	24.6	13.8	17.7	15.6	15.1	16.7	2.3	2.2	2.7
Netherland	23.2	24.1	4) 24.9	—	—	—	16.3	15.6	4) 16.7	3.8	3.8	4) 4.2
Czechoslovakia	18.4	12.5	16.3	14.9	9.6	12.4	17.8	18.0	17.4	3.3	2.3	2.8
3rd. WEEK OF SEPTEMBER.												
Germany	20.0	17.8	18.0	21.7	16.4	16.2	17.1	16.7	17.0	3.4	3.0	3.0
Denmark	16.9	17.4	2) 15.1	14.6	12.0	2) 13.9	17.1	15.8	2) 16.0	2.9	2.8	2) 2.5
Finland	17.3	13.4	18.2	19.1	19.5	24.9	—	14.3	15.8	—	1.9	2.9
France	16.4	16.2	17.8	24.6	15.7	17.4	15.8	15.8	17.2	2.6	2.6	3.1

---

1) Average of 2 years. — 2) Average of 4 yeats. — 3) Average of 3 years. — 4) Year 1930.

Sugar beet.

COUNTRIES	CROP CONDITION †)								
	1st September, 1936			1st August, 1936			1st September, 1935		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
Germany	2 4	—	—	2 4	—	—	—	—	3 1
Austria	2 1	—	—	2 0	—	—	—	—	3 1
Denmark	—	100	—	—	—	99	—	—	99
Lithuania	113	—	—	117	—	—	—	—	
Netherlands	1) 104	—	—	1) 106	—	—	—	—	1) 95
Poland	1) 3 5	—	—	1) 3 4	—	—	—	3 0	—
Sweden	120	—	—	1) 113	—	—	103	—	—
Switzerland	—	—	—	89	—	—	75	—	—
Czechoslovakia	2 0	—	—	—	—	—	—	—	3 3

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 621 — 1) In the middle of the preceding month

even in countries like France and Great Britain, which, a month ago was unsatisfactory owing to the excessive rainfall, made excellent progress during the month, although it is not quite as satisfactory as that in the rest of Europe

A substantial improvement could be seen in the beet area of Germany in the middle of September, and the crops are now sound and healthy with little evidence of disease The south-west of Hanover is perhaps an exception, warmer and more sunny weather being necessary there to increase the sugar content of the beet, while in the beet growing areas of South Germany the roots are somewhat small and growth is backward

In Czechoslovakia rainy and sunny days alternated, with very advantageous affects on the crops, the sugar content increasing particularly in Bohemia

Rains fell in western and southern areas of Poland about the middle of September after a short period of fine weather in the first days of the month, and there was a considerable drop in the temperature which was rather unfavourable for the growth of beet The crop condition, however, was throughout better than the average

The condition of the sugar beet crops was good in Austria, Belgium, Denmark (where there was a shortage of moisture however), Finland, Hungary, Lithuania, the Netherlands and Sweden

Production of sugar beet.

COUNTRIES	BRITISH UNITS			AMERICAN UNITS			% 1936	
	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	1935 = 100	Average 100
	Thousand centals			Thousand short tons			%	
Finland	1,764	1,517	1,214	88	76	61	116 3	145 3
Hungary	24,295	16,953	22,676	1,214	848	1,134	143 3	107 1
Netherlands	37,313	33,648	37,188	1,865	1,682	1,859	110 9	100.3
Sweden	40,477	41,138	32,391	2,024	2,057	1,620	98 4	125.0
—								
United States	182,000	158,160	178,732	9,100	7,908	8,937	115.1	101.8

Crop condition, though satisfactory, is not quite as good in France and Great Britain, as stated above, and in Bulgaria, Latvia and Romania.

An improvement is also reported in the U. S. S. R. as the result of the rain that followed the drought which was beginning to cause anxiety.

In Turkey the beets have been delivered to the factories and production appears to have been plentiful.

In the United States though the yield is a little below the average the outlook is better than it was a month ago.

In last month's *Crop Report* a sugar outturn almost equal to that of last year was forecast but, view of the progress registered during the month, sugar production in the year 1936-37 may now be reasonably expected to be larger than that obtained in 1935-36, whether or not the production in the Soviet Union be included.

E. R.

* * *

Germany. The beet crop showed good development at the beginning of September.

Austria: At the end of August the sugar-beet crop was growing well. The foliage was strong and healthy.

France. The beet situation is good but more favourable weather is required to increase the sugar content of the roots

Great Britain and Northern Ireland· Root crops improved considerably in England and Wales during the last half of August owing to the favourable weather conditions The beet crop is, however, likely to be below average as growth has been hindered by weeds or lack of sunshine.

The crops in Scotland were in average condition at the beginning of September.

According to the most recent estimate, the area under sugar beet this year is about 357,000 acres against 367,304 in 1935 and 319,175 on the average of the five years ending 1934; percentages 97.2 and 111.9

Hungary: Towards the end of August sugar beets were developing under good conditions. A good crop is anticipated.

Italy. During the second half of August the sugar beet harvest was in progress; though the crop is not expected to be abundant, the quality is good.

Netherlands: The crop condition of sugar beet in the middle of August varied from good to very good.

Czechoslovakia: The sugar beet crop is growing well and the foliage is luxuriant.

U. S. S. R.: Plentiful rains fell in Ukraina and in the Central Black Earth Regions during the third decade of August and the first of September, and greatly assisted the development of beet crops, which owing to the continuous drought of the spring and the greater part of the summer, had suffered seriously. As the result of the benefit obtained from the rains, and the improvement in the methods of cultivation, a plentiful crop is expected this year, probably larger than the good harvest of 1935. Last year the yield per acre was 118 centals (5.9 short tons) as compared with 74.3 centals (3.7 short tons) during the 5 years 1930-34. The total production in 1935 was 357.4 million centals (17.9 million short tons) from an area of 3,027,000 acres. As regards the area

Production of cane sugar.

COUNTRIES	1935-36 1)	1934-35	Average 1929-30 to 1933-34	1935-36 1)	1934-35	Average 1929-30 to1 933-34	% 1935-36 1934-35 = 100	% 1935-36 Average = 100
	Thousand centals			Short tons				
AMERICA.								
Antigua	476	392	391	23,800	19,600	19,565	121	120
Argentina	8,510	7,613	7,612	425,000	380,650	380,583	112	112
Barbados	2,893	1,825	2,129	144,653	91,267	106,452	158	136
Brazil	17,527	17,079	20,601	876,000	854,000	1,030,025	103	85
Cuba	57,982	56,838	65,701	2,900,000	2,841,800	3,285,017	102	88
Ecuador	463	425	438	23,000	21,300	21,889	109	106
United States (La)	6,834	4,680	3,880	340,000	234,000	194,000	146	176
Jamaica	2,094	1,719	1,354	105,000	85,960	67,720	122	155
Martinique	1,124	1,038	983	56,000	51,916	49,171	108	114
Mexico	7,275	5,842	4,769	360,000	292,000	238,423	125	153
Peru	8,752	8,597	8,988	438,000	429,854	449,405	102	97
Puerto Rico	18,960	15,628	17,810	950,000	781,382	890,466	121	106
Dominican Republic	9,568	9,501	8,425	478,000	475,051	421,233	101	114
Trinidad	3,197	2,638	2,250	160,000	132,000	112,475	121	142
Venezuela	493	419	473	24,640	21,000	23,640	118	104
Total America	*146,148*	*134,234*	*145,804*	*7,304,093*	*6,711,780*	*7,290,064*	*109*	*100*
ASIA								
Taiwan	19,820	21,289	17,097	990,997	1,064,439	854,855	93	116
India 2)	132,272	114,442	87,494	6,614,000	5,722,000	4,375,000	116	151
Japan 3)	2,435	2,510	1,839	121,800	125,500	91,965	97	132
Java	12,334	11,322	45,143	616,670	566,091	2,257,099	109	27
Philippine Is. 4)	24,030	16,865	24,141	1,200,000	843,000	1,207,039	142	100
Total Asia	*190,891*	*166,428*	*175,714*	*9,543,467*	*8,321,030*	*8,785,958*	*115*	*109*
AFRICA								
Egypt	2,907	3,010	3,093	145,400	150,515	154,624	97	94
Mauritius	6,184	3,943	4,990	309,200	197,200	249,500	157	124
Mozambique	1,653	1,863	1,789	83,000	93,130	89,000	89	93
Reunion	2,004	1,402	1,217	100,195	70,100	60,869	143	165
Union of South Africa	8,410	7,175	7,071	420,500	358,735	353,566	117	119
Total Africa	*21,158*	*17,393*	*18,160*	*1,058,295*	*869,680*	*907,559*	*122*	*117*
OCEANIA.								
Australia	14,837	14,473	12,767	742,000	723,700	638,347	103	116
Hawaii	19,621	19,048	19,963	980,000	952,000	998,160	103	98
Fiji Is.	2,943	2,491	2,264	147,200	125,000	113,183	118	130
Total Oceania	*37,401*	*36,012*	*34,994*	*1,869,200*	*1,800,700*	*1,749,690*	*104*	*107*
TOTALS	**395,598**	**354,067**	**374,672**	**19,775,055**	**17,703,190**	**18,733,271**	**112**	**106**

1) Approximate data. — 2) Production of *gur*. — 3) Production of sugar (refined and raw) and molasses. — 4) Production of sugar and *panocha*.

sown this year, the data relating to the 15 May only is available At this date the area was 3,020,500 acres, or 98 % of the Plan which provided for an acreage of 3,076,000.

Surinam: **Weather conditions during the second quarter of 1936 were not unfavourable for the cane plantations but the yield of canes has been somewhat affected by the excessive rainfall of recent months. No disease damage has been reported.**

Trinidad: Weather conditions in July were very favourable for sugar cane. Grinding of the 1936 crop was completed during the month, and the total output, although not yet exactly known, was reported to exceed all previous records.

Taiwan: The cane in old plantations is in normal condition.

Indo-China: The growth of the cane in Tonkin is satisfactory where cultural operations have been completed. In Annam and Cochin-China the canes appear to be in good condition.

Java and Madura (Aneta): The weather was not clear at all times in the first half of September but rains were rare. The old plantations are, on the whole, in good condition but in some places the cane has been affected by the drought while in others yields are light. The new plantations are in satisfactory conditions but the canes are showing the effects of the drought and the shortage of irrigation water.

Egypt: Growth of the sugar cane crop is progressing satisfactorily owing to the favourable weather and abundance of water. Formation of the internodes is also progressing in the early and general cultivations. Harvesting of the ratoon crop was begun in restricted areas in some of the provinces in Lower Egypt, for the local consumption. Irrigation is going on everywhere.

Mauritius: Weather conditions in July were favourable. The crop was estimated at 5,800,000 centals (290,000 short tons) as against 6,184,000 (309,200) in 1935-36 and 4,729,000 (236,400) on the average of the preceding five seasons. Percentages: 93.8 and 122.6.

VINES

Germany: The bad weather of the beginning of August had an unfavourable effect on the grapes but the subsequent warm and wet weather improved the condition of the crop. In the Moselle, Saar and Hesse there was a general improvement in condition while in the rest of the country, except Jagst, there was a slight worsening. The weather conditions of the first days of August encouraged *Peronospora* in some areas but a good autumn will ensure a satisfactory crop.

The condition of vines on 1 September 1936, in the system of the country, was 2.1 as at 1 August 1936 and 1 September 1935.

Austria: Grapes are ripening very slowly this year. It is expected that the production of wine will be much less than last year.

The condition of vines, in the system of the country was 2.9 at the beginning of September compared with 2.2 on 1 August 1936 and 1.7 on 1 September 1935.

France: Heavy rain fell in the first week of September in all parts, including Languedoc which urgently needed a break in the long drought which was giving rise to great anxiety, particularly among viticulturists. The general outlook improved appreciably in the south where picking became general.

Hungary: Towards the end of August ripening had commenced and early varieties were on sale in the markets.

Italy: During the second half of August the weather was favourable to the ripening of the grapes. In some districts drought is giving cause for anxiety. Prospects at the present moment are variable.

Luxemburg: The condition of vines on 1 September 1936, in the system of the country, was 2.9 against 2.9 on 1 August 1936 and 2.7 on 1 September 1935.

According to the most recent estimate, the production of must this year is about 1,210,000 Imperial gallons (1,453,000 American gallons) against 1,540,000 (1,849,000) in 1935 and 1,581,000 (1,899,000) on the average of the five years ending 1934; percentages 78.6 and 76.5.

Switzerland: The improvement in the weather in the second half of August had a good effect on the vines. Notwithstanding frequent rain, the plants which had been well tended were in comparatively good condition and promise an average crop but damage is more common among vines which were inadequately treated. The condition of the grapes is normal; ripening and consequently, prospects of a good quality crop, improved.

In quantity, the crop is below average.

Czechoslovakia: Vines have suffered from the frequent rains and have been considerably damaged by mildew and oïdium.

Yugoslavia: The rather rainy weather in July followed by drought in August and rain at the end of the month especially in the vine-growing region, had an unfavourable effect on the condition of the vines. The weather conditions combined with the attacks of oïdium and mildew have caused serious damage to the vines and it is feared that the grape harvest will be smaller than that of last year.

According to the latest information of the Ministry of Agriculture, the production of grapes will not be more than 15 million centals (770,000 short tons) while last year the crop was about 20 million centals (1,000,000 short tons).

Palestine: General development of vineyards is good except for a number planted late in the season which have succumbed to dryness Vintage is progressing. Weather conditions are favourable for fungous development, and mildew in vines is still reported to be serious in certain areas. Grape berry-moth is also causing considerable damage. Grapes in the plains are over, vines are dropping their leaves earlier than usual owing to dryness of the soil A vine survey has been instituted in order to collect data on areas under vines, varieties, stocks, conditions, etc.

Syria and Lebanon It Latakia weather conditions were unfavourable for vines Heavy rains followed by hot winds caused a shedding of leaves, flowers and young graftings. The crops are expected to be below those of 1935 In Jebel ed Drûze, notwithstanding the rather changeable temperatures and the persistent drought, conditions were fairly good. The production of crops is practically equal to that of last year

Algeria: The high temperatures of August were an adverse influence and hampered the swelling of the grapes. Serious attacks of eudemia and caterpillar caused rotting in some vineyards. The grape crop is expected to be 25 per cent. below the average.

French Morocco: The heats of the early part of August checked the spread of mildew but the effects of the scirocco were to be seen in the clusters: some damage was reported. Gathering began at some places The crops in some cases are so light that picking is not worth while. Gathering and sale of table grapes are progressing.

Tunisia: Owing to the scanty rainfall of the winter the situation of vines is not entirely satisfactory, except in some favoured areas, or in light deep soils. The vines in the South are in very good condition. Picking of *chasselas* and of *asseli* is progressing. These two varieties will this year yield a considerable quantity for export.

OLIVES

Italy: A mediocre crop of olives is anticipated in the Islands; forecasts for the other regions, on the other hand, are good; drought has, however, damaged the crop. Attacks of fly are of slight extent.

Palestine: Olives are developing very favourably especially owing to a light crop. Olive-fly is reported to be earlier than usual and causing considerable damage.

Algeria: The heats of August affected growth and fruiting. Shedding was considerable. An appreciable decrease from the crop of last year is expected.

Tunisia: Condition is generally mediocre, owing to the long drought, and production appears to be very poor.

FLAX

Finland: During August weather conditions were favourable to flax.

Great Britain and Northern Ireland The pulling of the flax crop in Northern Ireland was almost completed last month. Many crops were badly twisted and difficult to handle but very good progress was made with harvesting operations.

It was anticipated that the average yield of fibre will be up to average dimensions.

Hungary: Towards the end of August picking for tow and for seed was completed. The size of the seeds is satisfactory.

Latvia: On August 15 crop condition was classified as average in about half the cases and as very bad in many cases. Drought is the principal cause of the unsatisfactory condition of the crop.

Lithuania: At the beginning of September the forecast for the flax yield was lower than that of last year.

Netherlands: Although weather conditions were not favourable after the pulling of flax, the yield will not be below the average.

Poland: Crop condition of flax on 15 August was 3 0 against 3 0 on 15 July and 3.4 on 15 August last year.

Czechoslovakia: In the majority of flax-producing regions crop condition was above the average on September 1.

The yield of fibre will probably be average.

U. S. S. R.: The harvesting of flax for fibre was accomplished this year within a comparatively short period. The dry weather made for rapid drying of the stalks and threshing while the rains which fell subsequently facilitated retting. On 1 September the flax harvested from an area of 4,462,000 acres, which represents 90 per cent. of the area harvested at that date, had been laid out or retted.

Argentina. According to the monthly report published on 19 August by the Department of Rural Economy and Statistics of the Ministry of Agriculture at Buenos Aires, the crop situation in the main flax growing areas was as follows.

Flax

Countries	†) Area 1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/36 = 100	Average = 100	†) Production 1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1933/34	1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1933/34	% 1936 — 1936/37: 1935 — 1935/36 = 100	Aver = 100
	1,000 acres					1,000 centals			1,000 pounds				
Fibre.													
Germany 1)	100	55	18	182 3	565.9	...	1,517	2) 468	...	151,652	2) 46,772	...	...
Austria 3)	4	5	6	94.7	74.1	63	58	85	6,349	5,798	8,539	109.5	74.4
Belgium	52	47	35	112.6	149 7	...	838	317	...	83,806	31,660	...	..
Bulgaria	8	6	1	142.0	551.8	...	8	3	...	786	336	...	..
Estonia	69	73	51	95.4	135.3	196	231	144	19,621	23,073	14,448	85.0	135.8
Irish Free State	...	5	2	...	...	...	23	7	...	2,300	689	...	..
Finland 4)	12	12	10	102.9	123 9	...	39	32	...	3,946	3,236	...	.
France	. .	82	44	...	...	. .	479	247	..	47,885	24,652	. .	..
N. Ireland	25	28	13	91.4	188.0	...	154	62	...	15,438	6,156	...	...
Hungary	9	6	5) 8	130.3	102.1	42	21	5) 27	4,239	2,125	5) 2,666	199.5	159.0
Italy	...	9	10	...	...	...	44	48	. .	4,381	4,767	. .	...
Latvia	...	168	105	...	..	...	547	310	..	54,675	30,975	...	...
Lithuania 4)	208	194	146	107.0	142.0	...	703	459	..	70,328	45,936	. .	..
Netherlands	36	23	17	153.3	207.7	256	187	114	25,618	18,723	11,365	136.8	225.4
Poland	...	305	253	...	...	...	878	712	. .	87,811	71,195	...	...
Romania	...	77	55	...	...	...	210	129	...	21,007	12,915	...	...
Czechoslovak.	40	33	22	122.0	180.7	...	149	95	. .	14,923	9,541	..	...
Yugoslavia	...	30	30	...	...	...	222	226	...	22,169	22,604	. .	..
U. S. S. R. 6)	7) 5,072	5,206	5,513	97.4	92.0	...	12,125	11,322	...	1,212,546	1,132,197	.	...
Egypt	6	5	3	124 7	182.8	41	29	21	4,121	2,929	2,083	140 7	197 9
Linseed													
										1,000 bushels of 56 pounds			
Germany	100	55	18	182.3	565.9	...	366	105	...	654	187	..	...
Austria	...	3	4	...	...	12	12	14	21	22	24	98.2	87.3
Belgium	52	47	35	112.6	149.7	...	218	165	...	389	294	...	...
Bulgaria	8	6	1	142.0	551 8	...	26	6	...	46	10	...	...
Estonia	69	73	51	95,4	135 3	...	207	161		369	288	.	.
France	...	82	44	.	..	...		204	.	.	364	.	
Hungary	16	24	5) 30	66.6	53 4	124	117	5) 141	221	210	5) 251	105 5	87.8
Italy	...	10	15	..	...	.	49	78	.	88	140	. .	..
Latvia	.	168	105	...	...	...	454	299	.	811	533	.	
Lithuania 4)	208	194	146	107 0	142.0	..	833	559	.	1,487	999	. .	.
Netherlands	36	23	17	153 3	207.7	...	153	98	...	273	176	.	.
Poland	...	305	253	...	...	...	1,564	1,105	. .	2,793	1,974		
Romania	...	77	55	.	...	...	252	232	..	450	415	..	...
Czechoslovakia	40	33	22	122,0	180 7	...	126	71	...	225	127	...	.
U. S. S. R. 8)	9) 5,800	5,758	6,724	100.7	86.2	...	...	16,708	...	...	29,836	. .	.
Canada	468	214	432	218.3	108.2	1,039	824	1,321	1,855	1,472	2,359	126 1	78 6
United States	1,698	2,014	2,107	84.3	80.6	3,528	7,909	6,440	6,300	14,123	11.501	44 6	54.8
India	3,402	3,410	3,118	99.8	109.1	8.602	9,408	8,714	15,360	16,800	15,560	91 4	98 7
Egypt	6	5	3	124.7	182.8	43	36	25	77	64	44	119 2	173.9
Eritrea	...	2	10) 4	...	...	...	13	10) 20	...	24	10) 36	..	...
French Moroc.	41	42	52	98.2	78.4	176	136	246	315	243	440	129 6	71.6
Argentina	11) 7,290	11) 6,573	11) 7,702	110.9	94.6	...	29,322	41,634	. .	52,360	74,347	..	...
Uruguay	...	403	392	...	...	...	1,877	1,979	...	3,552	3,534	...	. .

---

†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) Production expressed in dry stalks (flax and straw) The corresponding figures in flax are as follows: 1935 — 30,331,000 lb, avarage — 9,354,000 lb. — 2) Year 1933 and 1934. — 3) Production expressed in terms of airdried stalk — 4) Flax and hemp. — 5) Year 1934 — 6) "Dolgunetz" variety. — 7) Area harvested at 1 September, representing 97 % of the area fixed by the Plan (5,241,000 acres) — 8) Total area (including that for flax). — 9) Total area according to the Plan. — 10) Average 1931 to 1934 — 11) Area sown.

In the North of the Province of Buenos Aires, the sowings were delayed and a decrease in area is expected to result Growth is good. The situation in other parts of the Province is normal

In the Province of Santa Fé, crop condition is generally good and an expansion is probable in the south owing to the increase in prices

In the Province of Córdoba, the sowings are practically finished and the area is appreciably larger than that of last year. Frost damage was limited except in the southeast, the outlook in good on the whole

In Entre Rios and Santiago del Estero the flax crops are in satisfactory conditions. Germination in some districts was hindered by the lack of moisture and by winds and locusts

(Telegram of 21 September) Flax sowing is practically finished and the seedings are developing normally Rains, however are needed

COTTON

Greece Weather conditions during the last ten days of July i e, during the period of flowering, were very favourable to the cotton crop

The rains which fell at the end of July were favourable to the rain-grown cotton

In some regions owing to the heat, the bolls had almost formed during the first ten days of August

In July forecasts for the crop were good, and have been maintained during August

Cotton.

Countries	Area 1936/37 (1,000 acres)	Area 1935/36 (1,000 acres)	Area Average 1930/31 to 1934/35 (1,000 acres)	Area % 1936/37: 1935/1936 = 100	Area % 1936/37: Average = 100	Production of ginned cotton 1936/1937 (1,000 centals)	1935/1936 (1,000 centals)	Average 1930/31 to 1934/35 (1,000 centals)	1936/1937 (1,000 bales of 478 lb)	1935/1936 (1,000 bales of 478 lb)	Average 1930/31 to 1934/35 (1,000 bales of 478 lb)	% 1936/37: 1935/1936 = 100	% 1936/37: Average = 100
Greece 1)	2) 176	110	62	159 5	284 6	2) 436	234	115	2) 91	49	24	186 5	380 5
U S S R	3) 4,932	6,827	4,883	102 2	101 0	4) 13,190	11,618	8,480	4) 2,759	2,431	1,774	113 5	155 5
United States 5)	29,720	27 335	34,658	108 7	85 8	53,158	50,852	63 777	11,121	10,638	13,343	104 5	83 4
China . .	6) 8,357	5,318	5,823	157 1	143 5	6) 21,830	10,853	11,806	6) 4,567	2,270	2,470	201 1	184 9
India 6)	15,769	15,271	13,844	103 3	113 9	—	—	—	—	—	—	—	—
Egypt .	1,781	1,733	1,743	102 8	102 2	..	8,454	7,076	...	1 769	1,480	...	...

1) Area sown — 2) Unofficial estimate — 3) Area sown up to 15 May, 1936, the area fixed by the Plan amounts to 4,979 000 acres — 4) Production as calculated in the Plan — 5) See *Summary of Government's Cotton Reports*, — 6) First estimate

Italy In some regions the crop required rain at the end of August the condition of the irrigated crop was good

U S S R Weather was predominantly dry and very hot during August and the first decade of September in the Central Asian Republics. Cotton picking had already begun in the greater part of the irrigated regions, and also in some parts of the non-irrigated at the beginning of September. Up to the 5th September 33,760 metric tons of unginned cotton had been acquired.

Harvesting in Uzbekistan, the chief cotton area, is 5 to 6 days late owing to the torrential rains of the second half of August which impeded the ripening of the bolls. Owing to the improved cultural methods introduced this year, a good harvest is expected.

United States (Report for the week ended 19 August): Progress of cotton continued favourable in the eastern belt, and unfavourable quite generally from the Mississippi Valley westward. In Texas the prolonged absence of rain and abnormally high temperatures produced unfavourable conditions, and cotton is now deteriorating rather rapidly over most of the State, with premature opening and much top blooming. In the southern third and along the coast progress and conditions were still generally good, and picking advanced rapidly. In Oklahoma the drought became extremely severe, with abnormally high temperatures persisting and virtually no rain for the entire month so far. There was much wilting, some plants dying, and there were many reports of premature opening. Picking has begun in some eastern localities, with the yield very poor. In the Mississippi Valley the crop is now generally needing rain with deterioration reported in Northern Louisiana and much of Arkansas, although conditions are still mostly fair in the eastern portion of the latter State. Progress was rather poor in Western Tennessee and only fair in Mississippi, where rain is needed. From Alabama and Central Tennessee eastward development was mostly good, though the crop is still late in many places Picking has progressed in southern districts and some early cotton is beginning to open as far north as Eastern Carolina.

(Report for the week ended 26 August): The temperatures were abnormally high in the North and near normal in the South Showers were fairly frequent in most of the eastern cotton States, but west of the Mississippi River another almost rainless week was experienced. The crop has continued to make satisfactory advance in the eastern third of the belt, but high temperatures and a lack of rain made conditions decidedly unfavourable in the western parts. In Texas progress continues good along the coast and the extreme south and western portions, but elsewhere deterioration continued with premature opening, shedding and top blooming Picking and ginning advanced rapidly In Oklahoma the week was extremely unfavourable and the crop deteriorated rapidly, the general condition being poor to only fair. In the States bordering the Mississippi River conditions were mostly unfavourable, especially in Arkansas, but there were beneficial showers in Mississippi.

(Report for the week ended 2 September): The temperatures were considerably above normal in the northern part of the cotton belt and near normal in the south. There was some heavy rain locally in the eastern and southern portions of the belt but elsewhere the week was mostly rainless The crop continued to make satisfactory progress in most of the eastern sections and there was some improvement in the Central Gulf, but conditions in the north-western belt were unfavourable. In Texas rains were helpful in the central and upper coast sections, but they were too scattered to be of much benefit in the north where the crop condition ranges from poor to only fair. In Oklahoma, where the drought continues, progress was poor and there has been much premature opening. In the Central States showers were helpful in Northern Louisiana and locally in other sections but there was continued dryness in most places. From Alabama eastward and north-eastward crop progress continued generally satisfactory though there was much complaint of rank growth.

Summary of Government's Cotton Reports, by cotton season:

	Provisional estimates for dates indicated 1936/37	Final estimates		Percent. 1936/37	
		1935/36	Average 1930/31 to 1934/35	1935/36 = 100	Aver. = 100
Report referred to 1 July.					
Area in cultivation (acres)	30,621,000	27,888,000	37,408,000	109.8	81.9
Report referred to 1 August:					
Area left for harvest (acres)	1) 29,924,000	2) 27,335,000	3) 34,658,000	109.5	86.3
Crop condition (per cent of normal)	72.3	73.6	4) 68.0	—	—
Production 5)	12,481,000	10,638,000	13,343,000	117.3	93.5
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 August 6)	41,130	94,346	85,520	43.6	48.1
Cotton ginned to 16 August 6)	208,327	316,930	345,824	65.7	60.2
Report referred to 1 September					
Area left for harvest (acres)	7) 29,720,000	2) 27,335,000	3) 34,658,000	108.7	85.8
Crop condition (per cent. of normal)	59.1	64.5	4) 58.7	—	—
Production 5)	11,121,000	10,638,000	13,343,000	104.5	83.4
Yield of lint per acre, in lb	179.2	186.3	4) 178.2	96.2	100.6
Cotton ginned to 1 September 6)	1,373,868	1,135,090	1,221,961	121.0	112.4
Cotton ginned to 16 September 6)	3,707,000	2,315,831	2,941,273	160.1	126.0

1) Area in cultivation on 1 July, less the ten-year, 1926-35, average abandonment, about 2.3 per cent. — 2) Area actually harvested; per cent. of abandonment about 2.0 — 3) Area actually harvested, the per cent of abandonment, about 1.7, does not take into account about 10,405,000 acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts — 4) Ten-year, 1925-34, average. — 5) In bales of 478 lb net weight and exclusive of linters. — 6) In running bales, counting round bales as half-bales and exclusive of linters — 7) Area in cultivation on 1 July, less 2.9 per cent of abandonment

(Comments relating to the Crop Report on 1 September). During the month of August material changes took place in the prospective United States cotton crop Generally speaking, there were moderate improvements in the conditions ruling in the Eastern part of the Belt, but these were much more than offset by damage to the crop caused by drought in the Western portion of the Belt. In the territory from Mississippi and Tennessee to Western Texas and Oklahoma very drastic deterioration occurred during August, caused by extremely hot and dry weather The damage was most serious in Oklahoma and North-West Texas, where many fields were almost a complete failure. The crop has been affected by drought, however, as far East as Eastern Mississippi In most of this area on 1 August the cotton plants were in excellent growing condition and gave promise of setting a heavy crop Unusually high temperatures and lack of moisture, however, caused excessive shedding of squares and young bolls. It also prevented the full development of the remaining bolls on plants. The heat also caused many of these bolls to open prematurely, which results in a further reduction of yield Since 1 August prospects had improved in all States from Alabama to the East with the exception of Florida, where prospects remain the same. During August weather conditions in these States have been very favourable for cotton, but the crop in this area is in various stages of development due to unfavourable weather during the first part of the season. For this reason the outturn in the Eastern part of the Belt is unusually dependent on the date of the first frost. Weevil damage in most areas is relatively light because of the weather conditions. In South Texas, however, weevils were very numerous and losses from this source have been quite heavy in many localities.

(Report for the week ended 9 September) The temperatures in the cotton belt ranged from slightly below normal in the north-east to abnormally high in the north-west, the weekly mean temperatures in the latter section being 10 to 12 degrees higher than the seasonal average. There was little rains except in some eastern and north-central districts. Conditions were mostly favourable in the eastern portion of the Belt, but unfavourable in the eastern parts. In Texas deterioration continued in the north-central sections, while the recent rains damaged open cotton along the coastal plains. Elsewhere in Texas, however, the crop condition ranged from fair to good. Rainfall was favourable in the north-west portion of the State and rapid progress was made in the picking of the crop. In Oklahoma the condition ranged from poor to very poor and picking is mostly completed in some localities owing to the light crop In Arkansas rains have been helpful in some sections but in the Central belt dryness was unfavourable in most sections. In the States from Alabama eastward and north-eastward crop progress was mostly satisfactory

(Report for the week ended 16 September) The dryness continued in the north-western portion of the cotton belt, though elsewhere showers were fairly general Temperatures were abnormally high especially in the northern portion of the belt. In Texas the crop deteriorated in the north-eastern section, but there were showers in most sections of the State at the close of the week Fair progress was made with picking until the rains stopped work In Oklahoma the crop deteriorated and the condition was very poor. Picking progressed and is nearly completed in some sections In the Central States progress was fair to good where there have been recent rains but many sections are still too dry. In Arkansas most of the mature bolls in much of the Western and Southern parts are open with stalks dead Elsewhere in the State crop progress was fair to good. In the Eastern States conditions are generally favourable early bolls opening well and good progress being made with picking

India The condition of the Punjab cotton crop at the beginning of September was 97 per cent of the normal compared with 95 per cent at the same time last year.

Indo-China Cotton picking is finished in Annam where, contrary to expectations, the yields are normal

Algeria Planting and growth of cotton were delayed by the late rains Most of the plantings consist of very early American varieties

Egypt During the second half of August, the weather conditions were more favourable to maturation and opening than during the first, and opening of bolls was progressing in all cultivations Picking advanced during this period, reaching about 15 per cent. in the South of the Delta, 20 per cent. in the perennial areas of Upper Egypt and 35 per cent in the basin lands In the northern regions where the crop is proceeding towards full maturation, picking is limited to some of the early-sown cultivations It is observed that opening and picking are about ten days earlier than last year The premature opening and dryness of some of the bolls in some localities, was the result of the high temperature and the excess of the humidity during the previous periods However, the judgement on the result depends on the weather conditions in September and October.

Nigeria By the end of June the ginning of cotton was finished, the quantity ginned being 192,000 centals (40,100 bales of 478 lb) against 195,000 (40,900) last season. 657,000 centals (32,800 short tons) of seed cotton were purchased during the season against 659,000 (33,000) last season.

Nyasaland: The growth of the cotton crop was retarded in July by cold weather.

Uganda: In most districts dry weather conditions were experienced during July and although this to some extent delayed planting the acreage at the end of the month was substantially above the corresponding figure for last season (885,000 acres as compared with 772,000, that is, an increase of 14 8 per cent.). In some areas the quality of the seed appeared to have been affected by being stored in a wet condition due to the abnormal rains during marketing. These difficulties had been met by replacing with good seed, and given normal weather conditions no unfavourable results were expected. The early sown cotton was well established and the fact that it forms a larger proportion of the crop than usual is itself favourable.

Tanganyika· As revised at 1 May 1936, the quantity of ginned cotton available for sale was estimated at 285,000 centals (59,500 bales of 478 lb.).

It was reported in May that the cotton crop was satisfactory

HEMP

Finland During August weather conditions were favourable to hemp.

Hungary· Pulling and retting were in progress towards the end of the month

Italy· Forecasts for the hemp crop were good Retting was progressing, generally speaking, under good conditions during the second half of August

Poland. On 15 August crop condition of hemp was 3 4 against 3 3 on 15 July and 3.4 on 15 August of last year

Czechoslovakia The conditions of the crop on 1 September was above the average in most of the hemp-producing regions

According to the most recent estimate the area under hemp this year is about 18,400 acres against 18,300 in 1935 and 18,500 on the average of the five years ending 1934, percentages 100 5 and 99 5

HOPS

Great Britain and Northern Ireland The weather at the end of August was ideal for the hop crop and during that period the plants made rapid progress Previously, however, the development of the crop had been retarded and many cases of downy mildew were observed

The yield of the crop is expected to be considerably less than last year but equal to the average of the ten years 1926-35

Hungary In the beginning of September hoppicking was in progress and the crop is good both as regards quality and quantity

Czechoslovakia Hop-picking is in progress The quantity as well as the quality of the crop is good The condition of the crop on 1 September was average.

According to the most recent estimate, the area of hops this year is about 29,000 acres against 28,900 in 1935 and 32,600 on the average of the five years ending 1934, percentages 100 3 and 89 0

Yugoslavia Generally speaking weather conditions in August were not very favourable to the crop Owing to the drought a smaller yield than last year is anticipated, but the quality will probably be above the average

Hop picking and drying, early this year, was in progress by the middle of August.

United States According to the estimate of 1 September, the production of hops this year is about 23,500,000 lb against 47,746,000 lb in 1935 and 31,015,000 lb. on the average of the five years ending 1934, percentages, 49.2 and 75.8.

TOBACCO

Greece: According to the most recent estimate (unofficial), production of tobacco this year is about 1,378,000 centals against 1,015,500 in 1935 and 1,036,200 on the average of the five yeas ending 1937, percentages, 135.7 and 133.0.

Hungary: Foliage is well developed. Picking had commenced at the end of August.

According to the most recent estimate, the area under tobacco this year will be about 35,000 acres against 37,700 in 1935 and 53,300 on the average of the five years ending 1934; percentages, 92.9 and 65.7. The corresponding production is estimated at about 421,800 centals against 472,700 and 670,900; percentages 89.2 and 62.9

Italy: At the end of August the forecast for the tobacco crop varied according to region; in general it is expected to be satisfactory.

Czechoslovakia: According to the most recent estimate, the area under tobacco this year is about 24,200 acres against 24,700 in 1935 and 23,100 on the average of the five years ending 1934, percentages 98.1 and 105.1.

Yugoslavia The favourable weather conditions which prevailed throughout July continued during the month of August After the rains in July the rather dry but not too hot weather improved the growth of the tobacco plants, particularly in those localities where it had suffered from oïdium

The forecast of an abundant crop larger than that of last year is confirmed, it is also expected that the quality of the tobacco will be superior to that of the preceding years.

United States: According to the estimate of 1 September, the production of tobacco this year is about 1,143 million lb against 1,297 million lb in 1935 and 1,337 million lb on the average of the five years ending 1934, percentages, 88.1 and 85.5.

Indo-China The last tobacco harvests were finished in Annam with generally satisfactory yields.

Palestine Weather in August was favourable for tobacco, and unit-yields are expected to be equal to those of last year, while production will be smaller, owing to reduction in areas under cultivation. The picking, stringing and drying of the leaves are in progress.

OTHER PRODUCTS

Cacao.

Surinam: During the second quarter of 1936 the condition of the cacao crop remained roughly what it was in the first quarter and other crops continue to take its place.

Gold Coast and British Togoland: MINOR CROP — Ashanti. — By the end of June flowering was practically over and recently set, small and half grown pods were most in evidence on the trees. In most districts the established plots had been weeded during the month and additional farms were being planted in many areas.

Western Province. — Pod setting was favoured by ideal weather and the coming major crop was expected to follow the present minor crop without a break.

Central Province. — Unfavourable weather for drying retarded harvesting so that the rate at which cacao was coming in the previous month was not maintained.

Eastern Province. — The trees were carrying pods of all sizes so that here again the major crop was expected to follow on closely.

Trans-Volta. — Favourable weather encouraged ripening and enabled harvesting to proceed more quickly than was expected. Flowers and small pods were abundant in the forms together with a few half grown and mature pods.

General. — The data taken on Observation Plots at the end of June shewed 2 per cent. of the pods to be ripe, 6 per cent fully grown but still green, 33 per cent. half grown, 38 per cent quarter grown, and the remaining 21 per cent. as small. The half grown pods, which formed a high percentage, represented the first main picking of the major crop and were expected to ripen off from late August to the end of October

Quality. — The mean purity of the beans was 82 3 per cent. The average size was 132 3 per 14 cubic inches, or 110 0 per 4 ounces, while measured in millimetres it was 22 1 × 12 0 × 6 5

MOVEMENT -- The crop movement in June was as follows

	June 1936	June 1935
	million pounds	
Railway offloadings, Takoradi	4 0	0 0
Exports		
Takoradi	5 8	5 8
Accra	8 7	11 4
Other ports	6 4	7 2
All ports	*20 9*	*24 4*

Tea

Indo-China The outturn of tea in Tonkin at the beginning of July was average, rather poor in the middle of the month and considerable at the end The picking in Annam in July was plentiful as a result of the rainstorms

Japan· Owing to favourable weather, the tea crop was in average condition on 1 September

Coffee.

Surinam Weather conditions during the second quarter of this year were not unfavourable for the coffee plants Ripening was later than usual in some plantations. Disease damage is normal.

Kenya It was reported in July that quality and yield of coffee were so far up to expectations.

Tanganyika As revised at 1 June 1936, the quantity of coffee available for sale was estimated at 301,000 centals.

Groundnuts.

Indo-China- Harvesting of ground nuts is finished in Tonkin. The yield showed great variation. The harvest in Annam was fairly good.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the groundnuts area:—

	1936 acres	1935 acres
Area harvested in July	63,300	38,500
Area harvested from 1 January 31 July	305,400	277,800
Area of standing crop at the end of July . . .	174,200	160,100

Egypt: The growth of groundnuts was satisfactory and the flowering was general in all cultivations. The formation of pods is progressing in the early and general cultivations. Watering and weeding are in progress The state of the crop is satisfactory.

Tanganyika As revised at 1 June, 1936, the quantity of groundnuts available for sale was estimated at 508,000 centals.

Colza and sesame.

Hungary Towards the end of August sowing of winter colza was in progress. Early sowings are growing evenly.

Netherlands According to the most recent estimate, the production of colza this year is about 100,800 centals (201,700 bushels) against 70,400 (140,800) in 1935 and 90,900 (181,000) on the average of the five years ending 1934. percentages, 143.2 and 110.9.

Czechoslovakia Colza has suffered to a certain extent from the rains The crop is expected to be generally very satisfactory

According to the most recent estimate, the area under colza this year is about 11,600 acres against 9,200 in 1935 and 3,500 on the average of the five years ending 1934; percentages 126.6 and 333.1. The corresponding production is estimated at about 149,700 centals (299,400 bushels) against 105,800 (211,500) in 1935 and 31,900 (63,800) on the average of the five years ending 1934; percentages 141.5 and 469.2

Indo-China Harvesting of sesame is completed in Tonkin

Palestine Sesame was being harvested in August, the yield and the production are generally poor and not expected to exceed 20 or 30 % of a normal crop.

Jute

India: According to the final estimate, the area under jute this year was about 2,546,000 acres against 2,181,000 acres in 1935-36 and 2,537,000 on the average of the five years ending 1934-35; percentages, 116.7 and 100.4. The corresponding production is estimated at about 34,544,000 centals against 28,960,000 centals and 32 364,000 centals, percentages 119.3 and 106.7.

Sericulture.

U. S. S. R.: The acquisition of cocoons was practically finished in the middle of August. On the 15 August the State organizations and co-operatives had taken 46,112,000 lb. against a total of 40,422,000 lb. last year.

Indo-China · Weather conditions in Annam in July were favourable for silk-worm rearing.

Japan: As a result of favourable weather, the fruiting of mulberries took place in average conditions.

Syria and Lebanon: The quantity of silkworm eggs placed in incubation this year is 32,240 ounces (66 per cent. in Lebanon, 19 per cent. in Latakia and 15 per cent. in Syria) against 30,350 ounces in 1935 and an average of 64,130 ounces in the years 1930 to 1934; percentages, 106 6 and 50.3

The production of cocoons was 1,579,000 lb. (about 60 per cent. in Lebanon) against 2,050,000 lb. in 1935 and an average of 4,932,000 lb.; percentages: 77.0 and 32.0.

FODDER CROPS

Germany The fodder crops showed good development at the beginning of September.

Austria · Beets for fodder were growing well towards the end of August. The second and succeeding cuts of temporary meadows have given good yields, but the drying of the hay was hampered by frequent rains Clover seed is being got in late, owing to slow and uneven ripening

The hay crop from the mountain pastures, which are cut only once, was hampered by the rains and serious losses have been caused On the other meadows the second cut, which promises well, was in progress about the middle of the month

Grass on the mountain pastures was still plentiful Milk production and increase in the weight of the animals which spent the summer on the mountain pastures were both satisfactory Ordinary pastures offer sufficient bite to the animals

Belgium The weather conditions of the year were generally favourable for fodder crops. In Upper Belgium, however, the continuous rains caused serious damage to the first cut

The areas devoted to fodder crops this year are as follows

	acres
Clover	204 730
Alfalfa	29 130
Temporary meadows	72 680
Permanent meadows for hay	588 980
Pasture	937.190
Other fodder crops·	
Mangels	214.860
Fodder turnips and other roots and tubers	13.890
Graminaceous crops and mixtures of graminaceous and leguminous crops	44.920

Bulgaria · Weather conditions during August were, generally speaking, favourable to the meadows and fodder crops; crop condition at the end of the month was good.

Estonia · As a result of favourable weather of the season, there was a good harvest of dry and green fodder which was reflected in the milk yield.

Clover production is estimated at 11,510,000 centals (575,000 short tons) against an average of 10,520,000 centals (526,000 short tons) in to the years 1930, 1933 and

The condition of fodder crops.

Crops and countries	Crop condition †): 1 September 1936 a)	b)	c)	1 August 1936 a)	b)	c)	1 September 1935 a)	b)	c)
Clover:									
Germany	2.4	—	—	2.4	—	—	—	—	3.5
Austria 1)	1.9	—	—	1.9	—	—	—	—	3.3
Netherlands:									
red clover	2) 71	—	—	2) 67	—	—	—	—	2) 56
white clover	—	—	—	2) 74	—	—	—	—	—
Poland	2) 3.2	—	—	2) 3.2	—	—	—	—	—
Alfalfa:									
Germany	2.2	—	—	2.3	—	—	—	—	2) 3.2
Austria	1.8	—	—	1.7	—	—	—	—	2) 3.5
Mangels:									
Germany	2.4	—	—	2 4	—	—	—	—	3.2
Austria	2.1	—	—	2.1	—	—	—	3.0	—
Denmark	—	—	2) 99	—	—	2) 99	—	—	2) 94
Netherlands	2) 71	—	—	2) 74	—	—	—	—	2) 62
Switzerland	77	—	—	80	—	—	71	—	—
Canada 3)	—	—	79	—	—	81	—	—	89
Temporary Meadows:									
Austria 4)	1.8	—	—	1.6	—	—	—	—	3.2
Norway	—	—	87	—	—	85	101	—	—
Sweden	105	—	—	—	—	—	107	—	—
Switzerland	86	—	—	86	—	—	65	—	—
Permanent Meadows:									
Germany:									
irrigated meadows	2.2	—	—	2.2	—	—	—	—	3.1
other meadows	2.4	—	—	2.4	—	—	—	—	3.6
Austria	1.8	—	—	1.7	—	—	—	—	3 4
Norway	—	—	—	—	—	82	103	—	—
Poland:									
ordinary meadows	—	—	2) 2.7	—	—	2) 2.6	—	—	2) 2.9
low meadows	—	2) 3.0	—	—	—	2) 2.8	2) 3.1	—	—
meadows improved	2) 3.5	—	—	2) 3.4	—	—	—	—	2) 2.9
Sweden	103	—	—	—	—	—	102	—	—
Switzerland	86	—	—	81	—	—	62	—	—
Pastures:									
Germany	2 5	—	—	2.7	—	—	—	—	3.6
Austria	2.0	—	—	2 0	—	—	2 9	—	—
Denmark	—	—	2) 93	—	—	91	—	—	2) 68
Netherlands	2) 79	—	—	2) 68	—	—	—	—	2) 52
Poland:									
permanent pastures	—	—	2) 2.6	—	—	2) 2.5	—	—	2) 2.7
temporary pastures	—	2) 3.0	—	—	—	2) 2.9	—	—	2) 2.8
Switzerland	74	—	—	73	—	—	80	—	—
Canada	—	—	79	—	—	82	—	—	93

a) Above the average. — *b)* Average. — *c)* Below the average. — *d)* Excellent — *e)* Good. — *f)* Average. — *g)* Bad. — †) See explanation of the various systems on page 621. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips — 4) Kleegrass.

1934 (109.4 per cent.). Hay from permanent meadows amounted to 25,800,000 centals (1,290,000 short tons) against an average in 1930-34 of 18,050,000 centals (902,000 short tons)

Irish Free State: The weather during the early days of August was unsettled, but from the 10th. until the close of the month there was bright sunshine and a high degree of warmth. All crops benefited by the change.

Finland: Fodder production is as follows:

	Centals			Short tons			% 1936	
	1936	1935	Average 1930-34	1936	1935	Average 1930-34	1935 = 100	Average = 100
Temporary meadows	72,422,095	74,626,725	63,047,612	3,621,055	3,731,285	3,152,338	97.0	114.9
Permanent meadows	5,612,988	6,172,964	7,503,059	280,646	308,644	375,148	90.9	74.8
Roots and tubers including turnips	14,184,589	17,416,577	14,951,858	709,220	870,817	747,583	81.4	94.9

France: The first and second cuts were very poor owing to the continuous bad weather of the summer. The cut in stubble-fields, however, was made generally in very good conditions. Fine weather predominated from mid-August to mid-September and was of great benefit to the fodder crops. Cut and dry fodders are excellent and a good aftermath is expected.

Great Britain and Northern Ireland: The outstanding feature of the weather during August in England and Wales was the deficiency of rainfall. During the first half of the month dull conditions with temperatures below normal prevailed generally but subsequently bright sunshine and high temperatures were experienced, the amount of sunshine for the whole month being above average in most districts.

The hay harvest started late owing to the wet weather and had not been completed by the end of August. Much of the crop was seriously damaged by rain and the general quality and condition of the hay is not good. Hay that was harvested during the second half of August was cut under favourable conditions but the quality is poor.

Root crops generally improved during the last half of August. Mangels and turnips and swedes generally appear healthy and average crops may be expected.

In Scotland root crops and pasture made some progress and were in good condition at the end of the month.

The hay harvest in Northern Ireland was almost completed during the favourable weather of late August, in bulk, the crop was only slightly lower than last year's but the quality is below the usual standards. The yields of both mangels and turnips are below the normal.

Hungary: The foliage of fodder beets was fresh and green towards the end of August. The roots were well developed. A good crop is anticipated.

The second cut of clover and the third of alfalfa have given a good yield. A good crop of clover seed is expected. The second sowing of maize for green fodder is growing well.

The yield of the second cut of permanent pastures is good both in quantity and in quality. The pastures give a good bite for the animals.

Italy: The yield of the fodder crop is expected to be abundant, in some regions, however, the crop has suffered from drought. The pastures in general provide enough bite for the animals.

Latvia: Hay, clover and permanent pastures were classified as of excellent and good quality in the majority of cases.

Netherlands: Pastures grew well as a result of copious rains but in the lower fields the grass suffered from an excess of moisture. Condition, on the whole, varied from good to very good.

Sweden: According to the latest information, the production of the main fodder crops is as follows (in centals and short tons respectively) Hay from temporary meadows, 103,044,000 (5,152,000) against 109,195,000 (5,460,000) in 1935 and an average in 1930 to 1934 of 106,784,000 (5,339,000) (94 4 % and 96.5 %), fodder roots and tubers, 62,802,000 (3,142,000) against an average 75,538,000 (3,777,000), (83 2 %), permanent meadows 13,933,000 (697,000) against 13,426,000 (671,000) in 1935 and an average of 12,232,000 (612,000) (103 8 % and 113 9 %).

Switzerland The condition of permanent and temporary meadows during August was satisfactory The aftermath cut was late but was made in good conditions on the whole, yields were satisfactory Alpages have yielded normally but they did not fully recover from the bad adverse weather of the beginning of the summer

Czechoslovakia. Fodder crops and grass lands have benefited from the exceptionally damp weather and as a result green fodder and hay as well as the aftermath were all extraordinarily abundant this year The third cut of alfalfa was in progress and in some districts there should even be a fourth cut Mixed clovers are also very good.

Yugoslavia The grass and other fodder crops are expected to be abundant and of good quality this year, last year, on the contrary, they were seriously damaged by the prolonged drought

The rainy weather which prevailed in July was very favourable to the growth of grass on the pastures and meadows, while the fine and rather dry weather later was very favourable to hay-making

Argentina (Telegram of 21 September) Pastures are in normal condition

LIVE STOCK AND DERIVATIVES

Pigs and cattle in Denmark.

Pigs

(Thousands)

Classification	1936					1935						
	18 July	13 June	2 May	21 Mar	8 Feb	28 Dec	16 Nov	5 Oct	24 Aug	13 July	25 May	13 April
Boars for breeding	23	24	23	22	21	21	21	21	21	20	20	20
Sows in farrow for first time . .	111	125	126	117	95	97	97	86	75	83	83	87
Other sows in farrow	184	189	182	172	175	181	181	178	184	188	172	154
Sows in milk . . .	108	99	93	100	96	90	89	98	90	78	88	98
Sows not yet covered (and not for slaughter)	30	27	25	25	23	21	26	29	25	24	25	22
Sows for slaughter .	16	15	14	15	18	16	17	14	9	10	12	12
Total of sows . .	*449*	*455*	*440*	*429*	*407*	*405*	*410*	*405*	*383*	*383*	*380*	*373*
Sucking pigs not weaned	887	810	768	819	779	732	766	860	782	673	724	813
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg . .	843	826	852	826	816	885	882	792	742	772	797	740
Pigs of 35 and under 60 kg. .	761	700	686	700	722	723	674	683	693	733	635	629
Fat pigs of 60 kg. and over .	540	559	562	558	518	450	565	534	545	453	500	463
Total pigs . . .	*3 503*	*3,374*	*3,331*	*3,354*	*3,263*	*3 216*	*3,318*	*3,295*	*3,166*	*3,034*	*3,056*	*3,038*

Cattle.

(Thousands).

Classification	18 July 1936	28 Dec. 1935	13 July 1935
Cattle	*3,116*	*3,063*	*3,072*
Calves under 1 year	787	796	782
Heifers 1 year and over	580	494	529
Cows which have calved, 2 years and over	1,615	1,658	1,647
Steers 1 year and over	70	51	51
Bulls 1 year and over	64	64	63

Live stock in Great Britain and Northern Ireland.

The numbers of live stock in the country on 4 June 1936 are shown in the following table with the corresponding figures for 1935

(Number)

	England and Wales		Scotland		Northern Ireland		Total	
	1936	1935	1936	1935	1936	1935	1936	1935
	No	No	No	No	No	No	No	No
Horses	*864,600*	*873,800*	*147 000*	*147,000*	*90,800*	*91 700*	*1,102,400*	*1,112,500*
Cows and heifers in milk	2,225,200	2,232,100	369,200	370,800	249 800	252,300	2,594,400	2,602,900
Cows in calf but not in milk	404,900	382,200	56,400	55,800			249,800 461,300	252,300 438,000
Heifers in calf	442,800	436,800	70,800	70,600	25,100	27,300	538 700	534,700
Other cattle –								
Two years and above	996,100	1 009,300	211,100	212,800	86,100	88,400	1,293,300	1,310,500
One year and under two	1,250 000	1,353,800	331,300	329,800	198,900	216,500	1,780,200	1,900,100
Under one year	1,214,900	1,126,800	274,500	278,700	209 800	214,800	1,699 200	1,620,300
Total cattle	*6,533,900*	*6 541,000*	*1 313,300*	*1,318,500*	*769 700*	*799 300*	*8,616,900*	*8,658,800*
Ewes kept for breeding	7,226,800	7,124,800	3,313,000	3 341,000	381,500	367,000	10,921,300	10,832,800
Other sheep –								
One year and above	1 679,300	1,756,700	977,000	1,037,000	49 900	52,800	2,706,200	2,846,500
Over six months and under one year	437,300	439,600	3,280,000	3,388,000	403,300	398,500	437,300 3,683,300	439,600 3,786,500
Under six months	7,287,100	7,155,900					7,287,100	7,155,900
Total sheep	*16,630 500*	*16,477,000*	*7,570,000*	*7,766,000*	*834 700*	*818,300*	*25,035,200*	*25,061,300*
Sows kept for breeding	483,100	494,100	28,500	32,000	56,500	47,400	568,100	573,500
Other pigs	3,318,000	3,319,300	207,900	228,200	464,800	410,500	3,990,700	3,958,000
Total pigs	*3,801,100*	*3,813,400*	*236,400*	*260,200*	*521,300*	*457,000*	*4,558,800*	*4,531,500*
Fowls	57,406,000	58,290,000	7,850,000	7,788,500	9,542,700	9,005,100	74,798,700	75,083,600
Ducks	2,588,000	2,487,000	237,000	254,700	498,700	525,200	3,323,700	3,266,900
Geese	630,000	646,000	26,000	23,700	139,000	147,100	795,000	816,800
Turkeys	734,000	684,000	95,000	81,600	389,300	407,200	1,218,300	1,172,800

Live stock in Greece.

In the following table figures are given showing the numbers of live stock in Greece at the end of the year 1935 compared with the figures for the corresponding period in each of the previous ten years.

Year	Cattle	Horses	Asses	Mules	Sheep	Goats	Pigs	Buffaloes	Rabbits
1935	957,233	361,377	377,691	178,207	8,185,123	5,285,907	623,641	58,995	515,966
1934	950,270	346,589	380.114	171,308	7,910,059	5,206,494	584,037	52,980	586,501
1933	913,513	341.165	374,480	169,473	7,427,129	4,951,584	506,807	50,471	561,626
1932	875,275	324,234	363,705	160,388	6,926,960	4,677,525	471,740	45,782	463,620
1931	867,612	325,294	352,862	159,507	7,071,725	4,625,990	422,521	45,885	403,594
1930	837,175	316,901	343,271	153,870	6,799,067	4,637,386	335,407	43,732	317,250
1929	831,059	323,339	380,648	147,817	5,805,646	4,179,214	275,684	43,001	97,805
1928	910,203	290,306	342,870	149,610	6,920,361	4,919,118	418,524	44,680	314,466
1927	908,585	276,741	328,152	135,299	6,441,830	4,579.199	452,595	38,558	292,216
1926	924,752	280,522	318,861	147,601	6,950,541	4,669,489	509,636	38,762	276,363
1925	854,230	269,510	299,233	138,037	6,636,433	4,103,136	451,561	36,233	208,329

The conditions of the year 1935 were rather favourable, for the animal raising industry,the plentiful yield of pastures and meadows and the good harvest of fodder cereals providing adequate feeding throughout the year. The prices of animal products were slightly higher than those which prevailed in previous years and this, together with the increased consumption of beef, pork and goat meat, was of benefit to the animal industry.

Nevertheless, the health of live stock was not always satisfactory The heavy rainfall of the year frequently resulted in floods and left stretches of stagnant water in the summer pasturing districts, there was a consequent spread of epizootic disease.

Official statistics for 1935 show a recrudescence of cases of anthrax, of *Septecemia hemorragica* and of *Pyroplasmosa*, in cattle, of anthrax and *Agalaxia* in sheep and goats. On the other hand, it is interesting to note that foot-and-month disease had completely disappeared and that, unlike conditions in 1933, other contagious diseases in pigs and horses were on the decrease

In any case in 1935 all varieties of live stock, except donkeys and rabbits, were slightly on the increase in relation to their numbers in the preceding years.

The absolute increase in actual numbers of cattle, goats and sheep during 1934 and 1935 is the result of the heavy increase in imports, especially in comparison with 1932, when attempts were made to reduce imports of live animals to a considerable extent.

The slackening in 1935 of the rate of annual increase of cattle and goats is due to the losses in these two types of animals as a result of epizootic disease. As regards the production of derivatives from live stock, milk, butter and cheese production by all types of live stock, except in the case of soft cheese, was considerably reduced in relation to 1934. A slight increase was noted, on the other hand, in the production of sheep and goat wool. The total number of poultry in 1935 was 11,246,166, i. e., a slight decrease in relation to 1934 (11,251,214), while the production of hen's eggs increased considerably, from 513.5 million eggs in 1934 to 546.5 million in 1935.

Among the various measures taken by the Government in 1935 to encourage stock-breeding, mention should be made of the continued granting of loans both to co-operatives and to private breeders, the intensification of the activities of model farms for the raising of cattle of selected breeds, the increase in vaccination of animals against epizootic disease, the organization of an energetic campaign against foot-and-month disease, etc.

Finally, during the second half of 1935 the Government prohibited exports of animals for slaughter, and of cheese and butter and encouraged importation of cattle.

Since 1931 the organisation of annual poultry exhibitions, under the auspices of the Ministry of Agriculture, has contributed in a great measure to recent progress in the problem of the improvement of breeds, while the question of rational feeding is still being studied

As sufficient data are not yet to hand it is not possible to estimate the situation of live stock in Greece during the first half of 1936. Nevertheless, an unofficial estimate of live stock on June 1936 indicates a decrease in numbers in all types of animals and taking into consideration, the fact that a Government decree has been issued prohibiting the sale of meat of every description on Wednesdays and Fridays as from mid-August 1936, it may be supposed that the live stock situation in Greeces has become more serious

G. S.

Live stock in Algeria.

The following table gives the numbers of the different categories of live stock during the first half of March, 1936, in comparison with those of the preceding twelve years and of 1914

Years	Horses	Mules	Asses	Cattle	Sheep	Goats	Pigs	Camels
	(Thousands)							
1936	181	188	360	840	6,416	2,922	56	174
1935	173	181	349	850	5,845	2,807	60	179
1934	171	177	332	884	5,513	2,830	52	170
1933	168	175	332	896	5,262	2,654	66	169
1932	168	170	319	893	5,269	2,743	86	201
1931	167	169	305	872	4,671	2,631	83	210
1930	173	169	302	938	7,172	3,267	87	201
1929	163	165	296	897	6,196	3,050	89	185
1928	164	164	279	887	5,614	2,920	89	173
1927	162	164	275	850	5,076	2,648	95	156
1926	167	165	285	946	6,786	3,126	93	173
1925	161	161	282	892	6,171	3,033	89	176
1924	163	157	292	892	5,790	2,805	93	150
1914	203	185	268	1,093	9,140	3,794	112	213

Live stock in New Zealand.

The numbers of live stock in 1936 and in the preceding four years are given below.

	1936	1935	1934	1933	1932
Horses	276,170	272,986	273,906	276,897	280,994
Total cattle	4,254,078	4,293,499	4,301,128	4,192,023	4,072,383
Dairy cows (in milk and dry).	*(1,951,507)*	*(1,952,094)*	*(1,932,511)*	*(1,845,972)*	*(1,702,070)*
Sheep shorn (Season ending June)	26,278,477	25,639,654	25,017,656	25,069,409	26,205,019
Lambs shorn (Season ending June)	3,618,648	3,529,202	3,508,008	2,629,837	2,542,470
Lambs tailed (Season ending June)	15,696,617	15,689,492	15,278,797	15,015,628	14,974,991
Sheep (including Lambs) .	1) 30,039,133	29,076,754	28,649,038	27,755,966	28,691,788
Pigs	808,463	762,755	660,393	591 582	513,416

1) At 30th April Other live stock figures are as at 31st January. The 1936 sheep figures are interim only.

The number of horses in 1936 shows an increase of about 3,000 on that of 1935, the first recorded since 1928 when the figure was 307,160. The number of cattle has declined in each year subsequent to 1934. The interim return of sheep as at 30 April 1936 gives a total of over 30,000,000. This figure, which represents an increase of nearly 1,000,000 on last year's total, is the second highest recorded. It continues the sequence of annual increases obtaining since 1933 The peak year was 1930 when the total number was 30,841,287.

Wool production in the United States.

According to a preliminary estimate of the Department of Agriculture, the amount of wool shorn or to be shorn in 1936 is 361,265,000 lb , or 1 per cent. less than the amount shorn in 1935 and 1.5 per cent. less than the average of 1931-35.

The decrease is due to a decline in the average weight per fleece, the number of sheep shorn in 1936 being but little different from the number shorn in 1935. The average weight per fleece this year was 7.94 lb. compared with 8.02 in 1935.

Wool production in New Zealand.

Wool production in the twelve months ending 30 June 1936 is estimated to have amounted to 316.5 million lb. on a greasy basis. Details are as follows:

Exports of wool	344.1
Exports of wool on skins	8.2
Wool used by New Zealand mills.	7.8
	360.1
Reduction in stocks held on 30 June 1936, compared with stocks on 30 June 1935	43.6
Estimated production in 1935-36	316.5

Production in 1934-35 and 1933-34 was 275.9 and 300.5 million lb. respectively.

The winter of 1935 was mild, the spring and early summer months were moist and shearing was late, these factors combining to bring the average fleece weight to over 9 lb.

Current information on live stock and derivatives.

Belgium: The milk flow was assisted by the absence of epizootic disease and by a plentiful fodder supply.

Great Britain and Northern Ireland Pastures in England and Wales made good growth during August. While there was ample grass at the end of the month it was deficient in feeding value. Cattle and sheep made good progress during the month but in northern areas hill lambs were somewhat short of condition. Milk yields were well maintained.

In Scotland the milk yield was, on the whole, well up to the average.

Netherlands· Owing to the vary rainy weather during the latter half of July grass was very abundant in August. Feed was therefore very good for milk cows. In comparison with the corresponding month last year milk production in August showed an increase in all provinces of from 7.5 to 10 per cent.

LATEST INFORMATION

United States (telegram of 24 September) The past week was marked by excessive precipitation on the Atlantic Coast and by sub-normal temperatures in Western and South-Western Sections. The seeding of winter wheat and rye is well forward but the soil in some localities is too dry and in others too wet Conditions in the maize belt varied and yields were better than expected in some places. Cotton picking made generally favourable progress

TRADE

COUNTRIES	July Exports 1936	July Exports 1935	July Imports 1936	July Imports 1935	Twelve months (August 1-July 31) Exports 1935-36	Twelve months (August 1-July 31) Exports 1934-35	Twelve months (August 1-July 31) Imports 1935-36	Twelve months (August 1-July 31) Imports 1934-35	Twelve months (August 1-July 31) Exports 1934-35	Twelve months (August 1-July 31) Imports 1934-35
Wheat. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Bulgaria	90	0	0	0	683	220	0	0	—	—
Hungary	1,579	214	0	0	8,164	6,526	0	0	—	—
Lithuania	0	4	0	0	1,274	584	0	0	—	—
Poland	60	606	0	0	1,164	1,274	0	9	—	—
Romania	...	...	...	...	1) 3,353	1) 2,059	1) 2	1) 4	—	—
Yugoslavia	42	18	0	0	368	1) 2,500	0	2	—	—
U. S. S. R.	...	...	...	...	1) 16,797	1) 1,257	1) 134	1) 1,038	—	—
Canada	15,547	5,494	0	0	139,214	86,627	9	2	—	—
Argentina	2,449	6,517	—	—	39,309	105,873	—	—	—	—
Chile	...	...	...	...	2) 1,314	2) 653	2) 0	2) 395	—	—
Syria and Lebanon	...	...	...	...	1) 159	1) 251	1) 7	1) 18	—	—
Algeria	265	408	20	18	5,523	7,028	653	309	—	—
French Morocco	...	...	...	...	1) 2,884	1) 4,312	1) 0	1) 0	—	—
Tunis	35	633	15	4	2,421	2,258	183	185	—	—
Australia	1,060	2,754	0	0	43,936	44,924	0	0	—	—
New Zealand	...	..	...	...	1) 0	1) 0	1) 262	1) 20	—	—
Importing Countries										
Germany	190	0	121	159	1,299	121	2,138	6,989	—	—
Austria	0	0	421	659	0	0	3,192	4,802	—	—
Belgium	42	68	2,024	2,019	970	1,739	24,319	25,452	—	—
Denmark	0	0	657	631	35	31	5,152	10,763	—	—
Spain	...	...	...	.	1) 0	1) 0	1) 18	1) 0	—	—
Estonia	24	18	4	0	84	137	84	0	—	—
Irish Free State	0	0	1,131	774	0	0	8,759	9,460	—	—
Finland	0	0	198	150	0	0	1,618	1,338	—	—
France	719	1,303	966	1,305	8,642	22,705	16,056	15,829	—	—
Gr Brit. and N. Irel.	174	106	9,740	9,515	734	827	114,400	113,179	—	—
Greece	0	0	977	847	0	0	8,823	8,682	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	49	366	0	0	926	657	0	0	—	—
Norway	0	0	121	265	0	0	3,382	3,907	—	—
Netherlands	0	46	955	875	4	811	11,367	11,200	—	—
Portugal	0	0	0	44	2,443	0	152	207	—	—
Sweden	293	461	84	53	2,119	1,973	1,010	902	—	—
Switzerland	0	0	985	1,155	2	2	10,002	10,750	—	—
Czechoslovakia	0	0	0	148	4	4	1,294	849	—	—
United States	15	40	3,289	904	163	1,356	31,791	15,540	—	—
Ceylon	—	—	7	0	—	—	99	33	—	—
China	...	...	..	...	1) 141	1) 273	1) 3,735	1) 10,465	—	—
India	97	4	0	0	439	247	298	101	—	—
Japan	—	—	...	...	—	—	2) 7,683	2) 9,431	—	—
Egypt	...	...	...	...	1) 2	1) 51	1) 2	1) 1,235	—	—
Union of South Afr.	...	...	...	...	1) 0	1) 2	1) 24	1) 529	—	—
Totals	**22,730**	**19,060**	**21,715**	**19,525**	**284,571**	**297,282**	**256,648**	**263,625**	—	—
Rye. — Thousand centals (1 = centals 100 lb.).										
Exporting Countries:										
Germany	0	0	90	128	820	51	690	5,393	—	—
Bulgaria	0	0	0	0	121	0	0	0	—	—
Estonia	0	123	0	0	333	783	331	22	—	—
Hungary	22	7	0	0	209	728	0	0	—	—
Latvia	245	20	0	0	2,041	1,929	0	0	—	—
Lithuania	0	4	0	0	1,973	1,199	0	0	—	—
Poland	276	284	0	0	4,782	11,665	0	0	—	—
Romania	...	...	...	...	1) 342	1) 0	1) 0	1) 0	—	—
Sweden	15	51	0	0	904	2,000	18	22	—	—
U. S. S. R.	...	...	—	—	1) 1,475	1) 547	—	—	—	—
Canada	373	119	0	0	1,376	666	0	11	—	—
Argentina	121	196	—	—	2,273	5,882	—	—	—	—
Algeria	4	2	0	0	26	26	0	0	—	—
Importing Countries:										
Austria	0	0	55	62	2	0	994	1,777	—	—
Belgium	0	18	496	71	26	31	3,680	1,797	—	—
Denmark	0	0	430	304	0	4	4,176	4,090	—	—
Finland	0	0	97	152	0	0	1,504	450	—	—
France	0	0	4	2	0	4	29	35	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	273	201	0	0	3,358	2,535	—	—
Netherlands	0	0	245	207	77	227	1,748	1,854	—	—
Switzerland	0	0	31	9	0	0	342	161	—	—
Czechoslovakia	0	0	2	0	4	4	18	20	—	—
United States	0	0	163	201	4	0	1,221	5,917	—	—
Totals	**1,056**	**824**	**1,886**	**1,337**	**16,788**	**25,746**	**18,109**	**24,084**	—	—

COUNTRIES	JULY				TWELVE MONTHS (August 1- July-31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	79	42	0	0	758	659	31	73	—	—
Bulgaria	0	0	0	0	0	0	0	0	—	—
Spain	...	...	...		1) 13	1) 0	1) 0	1) 0	—	—
France	203	216	84	90	3,197	4,264	1,226	1,539	—	—
Hungary	146	26	0	0	1,248	809	0	0	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	0	0	0	0	0	0	0	0	—	—
Poland	157	161	0	0	2,163	750	0	0	—	—
Romania	...	...	...	...	1) 2	1) 0	1) 0	1) 0	—	—
Yugoslavia	4	4	0	0	75	40	0	0	—	—
U. S. S. R.	...	...	...	...	1) 637	1) 745	1) 370	1) 205	—	—
Canada	873	776	7	15	9,758	9,310	121	390	—	—
United States	569	485	20	0	6,733	7,637	88	9	—	—
Argentina	181	212	—	—	1,757	2,138	—	—	—	—
Chile	...	...	...	...	2) 71	2) 44	2) 24	2) 51	—	—
India	29	40	2	0	403	309	11	4	—	—
Japan	...	...	...	...	2) 3,686	2) 6,204	2) 181	2) 22	—	—
Algeria	73	49	4	9	842	911	88	104	—	—
French Morocco	...	...	...	...	1) 4	1) 51	1) 0	1) 0	—	—
Tunis	26	29	7	0	410	624	31	62	—	—
Australia	1,016	1,279	0	0	12,148	14,376	0	2	—	—
Importing Countries,										
Austria	0	0	42	35	2	2	750	774	—	—
Belgium	4	7	4	4	60	51	90	148	—	—
Denmark	2	2	24	42	22	18	218	474	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Irish Free State	0	0	15	42	0	0	159	489	—	—
Finland	0	0	75	77	0	0	688	853	—	—
Gr. Brit. and N. Irel.	240	247	679	855	2,652	3,400	9,528	9,079	—	—
Greece	0	0	2	2	0	0	22	33	—	—
Norway	0	0	75	117	4	4	893	999	—	—
Netherlands	0	0	150	90	7	9	1,206	908	—	—
Portugal	—	—	4	4	—	—	97	150	—	—
Sweden	4	0	0	0	18	0	0	2	—	—
Czechoslovakia	0	0	4	2	7	4	24	20	—	—
Ceylon	—	—	18	22	—	—	337	403	—	—
China	...	...	..	..	1) 22	1) 57	1) 789	1) 1,407	—	—
Indo-China	...	...	...	...	1) 0	1) 0	1) 357	1) 351	—	—
Java and Madura	—	—	...	...	—	—	1) 1.188	1) 1,074	—	—
Syria and Lebanon	...	...	...	...	1) 88	1) 60	1) 77	1) 101	—	—
Egypt	...	...	...	...	1) 0	1) 0	1) 68	1) 68	—	—
Union of South Afr.	...	...	...	...	1) 2	1) 2	1) 11	1) 11	—	—
New Zealand	...	...	...	..	1) 0	1) 2	1) 207	1) 209	—	—
Totals	**3,606**	**3,575**	**1,216**	**1,406**	**46,789**	**52,480**	**18,880**	**20,014**	—	—
	Barley. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	0	0	0	0	44	0	0	0	—	—
Spain	..	...	...	...	1) 15	1) 0	1) 0	1) 0	—	—
Hungary	13	0	0	0	282	93	362	24	—	—
Lithuania	0	0	0	0	328	176	0	0	—	—
Poland	295	278	0	0	7,727	7,180	0	0	—	—
Romania	...	...	..	..	1) 3,882	1) 4,048	1) 0	1) 0	—	—
Czechoslovakia	24	31	0	0	805	1,140	2	2	—	—
Yugoslavia	0	0	0	0	2	538	24	0	—	—
U. S. S. R.	...	...	—	—	1) 13,477	1) 3,120	—	—	—	—
Canada	908	527	0	0	3,684	7,227	0	0	—	—
United States	256	262	201	174	4,711	2,132	337	5,291	—	—
Argentina	370	399	—	—	4,416	9,654	—	—	—	—
Chile	...	...	—	—	2) 472	2) 1,186	—	—	—	—
India	4	0	9	4	40	390	121	13	—	—
Algeria	110	22	90	7	789	1,177	575	754	—	—
Egypt	...	...	...	...	1) 0	1) 0	1) 13	1) 18	—	—
French Morocco	...	...	...	...	1) 2,657	1) 6,069	1) 0	1) 0	—	—
Australia	115	53	0	0	1,241	1,380	0	0	—	—
Importing Countries:										
Germany	0	0	128	170	0	2	1,532	10,498	—	—
Austria	0	0	86	82	0	0	1,175	1,572	—	—
Belgium	29	2	483	342	456	454	9,246	8,481	—	—
Denmark	2	0	0	139	1,530	1,398	77	1,030	—	—
Irish Free State	0	0	33	2	7	4	452	256	—	—
France	0	0	498	265	0	2	5,057	3,999	—	—
Gr. Brit. and N. Irel.	0	0	1,385	1,089	4	9	22,254	14,315	—	—
Greece	0	0	2	0	0	0	154	77	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	15	11	0	2	337	168	—	—
Netherlands	0	0	545	401	214	194	6,605	5,913	—	—
Switzerland	0	0	60	165	0	0	2,546	2,696	—	—
Syria and Lebanon	...	...	...	...	1) 853	1) 134	1) 7	1) 44	—	—
Tunis	0	194	84	2	1,667	395	130	1,010	—	—
Totals	**2,126**	**1,768**	**3,619**	**2,853**	**49,303**	**48,104**	**51,006**	**56,161**	—	—

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35

Oats. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	July Exports 1936	July Exports 1935	July Imports 1936	July Imports 1935	Twelve months Exports 1935-36	Twelve months Exports 1934-35	Twelve months Imports 1935-36	Twelve months Imports 1934-35	Twelve months Exports 1934-35	Twelve months Imports 1934-35
Exporting Countries:										
Irish Free State	0	0	0	0	0	0	0	0	—	—
Hungary	7	0	0	0	108	0	0	0	—	—
Lithuania	0	0	0	0	518	212	0	0	—	—
Poland	170	55	0	0	2,595	994	0	0	—	—
Romania	...	...	...	...	1) 379	1) 62	1) 0	1) 0	—	—
Czechoslovakia	0	22	0	0	82	53	13	2	—	—
Yugoslavia	0	4	0	0	73	280	0	0	—	—
Canada	505	364	115	0	4,074	4,965	115	0	—	—
United States	2	35	0	9	205	150	22	4,828	—	—
Argentina	150	280	—	—	3,086	13,362	—	—	—	—
Chile	...	...	0	0	2) 531	2) 1,047	0	0	—	—
Tunis	2	55	0	0	214	467	0	0	—	—
Australia	2	7	0	0	97	265	2	2	—	—
Importing Countries:										
Germany	0	0	196	179	0	13	463	4,791	—	—
Austria	0	0	53	57	0	0	613	287	—	—
Belgium	0	0	55	117	0	0	897	430	—	—
Denmark	0	0	4	53	439	657	143	884	—	—
Estonia	0	0	0	0	0	15	44	0	—	—
Finland	0	0	29	0	0	2	769	11	—	—
France	0	0	53	55	7	33	476	428	—	—
Gr Brit. and N. Irel.	2	0	269	489	20	18	2,866	3,488	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	0	0	130	0	0	0	—	—
Norway	0	0	0	44	0	0	7	64	—	—
Netherlands	0	0	68	86	214	104	516	873	—	—
Sweden	2	0	11	2	181	37	280	24	—	—
Switzerland	0	0	340	271	0	0	4,416	4,354	—	—
Algeria	49	4	7	13	260	132	46	141	—	—
Totals	**891**	**826**	**1,200**	**1,375**	**13,213**	**22,868**	**11,688**	**20,607**	—	—

Maize. — Thousand centals (1 cental = 100 lb)

COUNTRIES	July Exports 1936	July Exports 1935	July Imports 1936	July Imports 1935	NINE MONTHS (November 1 July 31) Exports 1935-36	NINE MONTHS (November 1 July 31) Exports 1934-35	NINE MONTHS (November 1 July 31) Imports 1935-36	NINE MONTHS (November 1 July 31) Imports 1934-35	TWELVE MONTHS (Nov. 1 Oct 31) Exports 1934-35	TWELVE MONTHS (Nov. 1 Oct 31) Imports 1934-35
Exporting Countries										
Bulgaria	216	0	0	0	1,411	399	0	0	401	0
Hungary	0	0	238	419	31	130	6,854	926	130	2,996
Romania	...	..	.		1) 13,999	1) 7,020	1) 0	1) 0	11,131	0
Yugoslavia	126	613	0	0	1,071	10,573	0	0	12,652	0
United States	42	4	728	3,164	249	220	5,997	13,944	251	23,034
Argentina	11,940	17,253	—	—	109,061	100,068	—	—	143,349	—
Java and Madura	192	37	—	—	2,150	1,347	—	—	1,422	—
Indo-China	..		—	—	1) 4,987	1) 5,509	—	—	10,099	—
Syria and Lebanon		.	..	.	1) 57	1) 2	1) 2	1) 7	2	7
Egypt	...	...	...	...	1) 2	1) 0	1) 7	1) 20	0	31
Union of South Afr.	4	68	...	...	1,446	6,660	1) 4	1) 0	10,247	0
Importing Countries										
Germany	0	0	454	474	0	0	3,876	7,088	0	7,738
Austria	0	0	624	697	0	0	5,485	7,855	0	9,431
Belgium	68	24	1,312	1,554	437	569	14,577	11,363	728	16,208
Denmark	0	0	359	1,459	0	0	2,844	4,061	0	5,084
Spain	...	...	...	.	1) 0	1) 0	1) 1,482	1) 434	0	1,052
Irish Free State	0	0	474	694	0	0	3,382	4,440	0	6,237
Finland	0	0	132	88	0	0	1,658	452	0	988
France	0	0	851	780	2	9	10,571	11,435	9	14,154
Gr Brit. and N. Irel.	152	269	5,282	6,821	972	1,684	57,232	45,914	2,222	64,492
Greece	0	0	196	101	0	0	1,407	827	0	988
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	317	283	0	0	2,015	1,731	0	2,754
Netherlands	0	0	1,612	1,579	2	0	15,168	14,586	0	19,321
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	11	13	2	0	302	450	2	548
Sweden	0	0	141	190	0	0	1,087	529	0	891
Switzerland	0	0	119	130	0	0	1,378	1,235	0	1,892
Czechoslovakia	0	0	302	240	0	0	1,649	2,057	0	2,793
Canada	0	0	368	617	44	4	2,017	3,272	4	4,566
Japan	—	—	...	...	—	—	2) 3,708	2) 9	—	1,777
Tunis	0	0	0	0	4	2	0	55	7	55
Totals	**12,740**	**18,268**	**13,520**	**19,303**	**135,927**	**134,196**	**142,702**	**132,690**	**192,656**	**187,037**

---

1) 2) See notes page 674.

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
Rice. — Thousand central (1 cental = 100 lb.).										
Exporting Countries:										
Spain	...	...	...	...	1) 558	1) 375	1) 0	1) 0	613	0
Italy	—	—	—	—	—	—	—	—	—	—
United States	0	55	64	13	104	961	525	425	1,667	534
Brazil	...	...	—	—	1) 675	1) 604	—	—	2,086	—
India	2,405	1,997	794	201	20,042	27,750	2,857	2,132	37,179	4,784
Indo-China	...	...	...	...	1) 21,418	1) 26,577	1) 22	1) 7	38,921	33
Siam	2,542	1,867	—	—	19,936	19,842	—	—	34,350	—
Egypt	...	...	...	...	1) 1,202	1) 578	1) 0	1) 13	1,561	15
Importing Countries:										
Germany	44	37	306	392	280	245	2,086	2,416	611	4,209
Austria	0	0	60	55	0	0	328	381	0	745
Belgium	13	4	123	71	71	24	556	525	62	933
Denmark	0	0	2	2	0	0	64	60	0	90
Estonia	—	—	2	2	—	—	11	7	—	18
Irish Free State	0	0	7	11	0	0	51	42	0	55
France	40	31	1,057	719	190	395	9,575	5,717	514	9,473
Gr. Brit. and N. Irel.	11	7	159	254	90	106	1,570	1,872	141	2,672
Greece	0	0	62	62	0	0	355	340	0	593
Hungary	0	0	33	22	0	0	218	183	0	414
Latvia	0	0	2	0	0	0	9	7	0	13
Lithuania	0	0	2	2	0	0	4	4	0	9
Norway	0	0	11	7	0	0	75	73	0	110
Netherlands	198	148	214	163	990	1,151	2,253	1,830	2,044	3,287
Poland	29	24	13	218	71	79	653	899	196	1,045
Portugal	—	—	143	115	—	—	183	287	—	414
Sweden	—	—	40	4	—	—	183	168	—	227
Switzerland	0	0	31	44	0	0	254	256	0	511
Czechoslovakia	0	0	157	115	0	0	670	778	0	1,473
Yugoslavia	0	0	22	29	0	0	269	227	0	441
Canada	2	0	123	84	11	2	659	547	4	644
Chile	—	—	...	..	—	—	2) 207	2) 97	—	306
Ceylon	0	0	941	1,065	2	2	7,238	7,117	2	12,511
China	...	...	...	...	1) 333	1) 55	1) 4,998	1) 24,663	146	28,581
Java and Madura	37	7	...	...	68	13	1) 157	1) 2,460	154	2,604
Japan	...	...	...	...	2) 66	2) 582	2) 159	2) 77	708	866
Syria and Lebanon	. .	...	...	...	1) 0	1) 0	1) 190	1) 209	0	414
Algeria	0	0	13	9	2	0	152	99	2	152
Tunis	0	0	4	2	0	0	24	20	0	26
Union of South Afr.	...	..	..	..	1) 0	1) 0	1) 659	1) 507	0	1,204
Australia	31	15	0	2	134	148	35	29	247	51
New Zealand	...	...	...	.	1) 0	1) 0	1) 49	1) 46	0	79
Totals	**5,352**	**4,192**	**5,385**	**3,652**	**66,230**	**79,489**	**37,298**	**54,520**	**121,208**	**79,536**
Linseed. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Lithuania	24	9	0	0	203	88	0	0	280	0
Argentina	2,657	2,727	—	—	17,644	25,175	—	—	38,958	—
India	582	117	0	0	3,794	1,336	0	0	2,919	0
Tunisia	0	0	0	0	0	0	0	0	2	0
Importing Countries:										
Germany	0	0	450	60	0	0	3,325	2,590	0	5 452
Belgium	0	0	157	137	88	82	1,351	1,473	112	2,725
Denmark	—	—	31	26	—	—	269	337	—	562
Spain	—	—	...	...	—	—	1) 165	1) 194	—	558
Estonia	0	0	4	0	2	2	20	4	4	20
Finland	0	0	7	2	0	0	79	46	0	84
France	0	0	509	456	2	2	4,123	5,459	4	5,695
Gr Brit. and N. Irel.	0	0	769	547	0	2	3,801	3,179	2	5,774
Greece	0	0	7	15	0	0	26	64	0	119
Hungary	0	0	0	0	0	4	0	0	9	0
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	2	4	26	49	33	51	57	84
Norway	0	0	51	15	0	0	324	346	0	536
Netherlands	2	0	410	251	73	55	3,708	5,997	77	8,871
Poland	0	0	0	0	77	0	0	0	26	0
Sweden	—	—	75	64	—	—	452	591	—	915
Czechoslovakia	0	0	55	18	0	0	326	384	0	578
Yugoslavia	0	0	0	2	0	0	60	128	0	185
Canada	0	0	51	0	4	4	465	256	11	284
United States	—	—	66	1,254	—	—	3,887	6,292	—	9,833
Japan	...	...	...	...	2) 0	2) 2	2) 110	2) 223	2	478
Australia	0	0	121	44	0	0	355	527	0	750
Totals	**3,265**	**2,853**	**2,765**	**2,895**	**21,913**	**26,801**	**22,879**	**26,141**	**42,463**	**43,503**

1) 2) See notes page 674.

COUNTRIES	July				Seven months (January 1-July 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Butter. — (Thousand lb.).									
Exporting Countries:										
Austria	567	522	0	2	3,666	3,212	7	9	5,688	18
Denmark	30,389	27,538	172	0	191,468	181,959	179	0	304,936	0
Estonia	2,654	3,269	0	0	11,775	12,555	0	0	23,894	0
Irish Free State	10,448	13,241	4	13	31,376	37,033	7	24	59,470	40
Finland	3,177	1,969	0	0	18,367	13,913	0	0	22,582	0
Hungary	520	119	0	0	4,048	2,480	0	0	5,516	0
Latvia	4,255	4,736	0	0	20,499	20,776	0	0	37,073	0
Lithuania	5,002	3,792	0	0	16,416	13,111	0	0	26,795	0
Norway	0	0	0	0	362	247	0	0	417	4
Netherlands	14,529	9,301	2	9	79,170	62,237	35	229	103,146	430
Poland	4,259	1,781	0	0	12,132	4,793	0	13	12,533	2
Sweden	4,497	4,813	0	0	23,016	28,678	412	2	44,664	1,340
U. S. S. R.	...	...	...	...	1) 8,098	1) 26,634	1) 295	1) 388	64,801	529
Argentina	2,022	86	—	—	13,411	9,661	—	—	14,941	—
India	7	24	64	60	128	119	575	437	240	789
Syria and Lebanon	...	...	...	...	1) 331	1) 298	1) 106	1) 205	463	309
Australia	6,464	6,997	2	0	112,721	157,382	4	2	256,769	2
New Zealand	...	...	—	—	1) 156,621	1) 156,921	—	—	312,445	—
Importing Countries:										
Germany	0	2	12,209	10,461	0	9	87,255	88,549	13	156,529
Belgium	7	7	97	227	40	37	7,169	7,815	71	13,312
Spain	...	...	...	...	1) 11	1) 15	1) 7	1) 64	26	79
France	2,022	1,138	134	112	6,147	5,595	3,589	752	11,605	1,504
Gr. Brit. and N. Irel.	542	578	104,528	102,850	5,692	11,574	653,992	667,950	15,768	1,076,827
Greece	—	—	117	106	—	—	492	448	—	1,014
Italy	—	—	—	—	—	—	—	—	—	—
Switzerland	0	0	20	15	2	0	1,486	106	4	302
Czechoslovakia	0	0	26	201	2	0	366	1,962	4	2,928
Canada	2,718	40	2	22	3,781	245	108	64	7,696	148
United States	62	130	309	176	516	443	4,989	21,663	957	22,675
Ceylon	—	—	37	46	—	—	412	529	—	855
Java and Madura	—	—	...	...	—	—	1) 4,711	1) 5,289	—	10,247
Japan	—	—	...	...	—	—	2) 7	2) 11	—	22
Egypt	...	...	...	...	1) 35	1) 112	1) 582	1) 529	128	994
Tunis	0	2	90	165	2	13	1,165	1,301	24	2,017
Totals	**94,141**	**80,085**	**117,813**	**114,465**	**719,833**	**750,052**	**767,940**	**798,341**	**1,332,669**	**1,292,916**
	Cheese. — (Thousand lb.).									
Exporting Countries:										
Bulgaria	234	265	0	0	2,112	1,742	0	0	4,224	0
Denmark	1,713	853	2	0	12,771	7,544	11	20	14,689	29
Finland	880	425	0	4	5,950	4,905	9	9	9,365	22
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	2	2	0	0	454	450	0	2	496	2
Norway	134	174	9	11	1,850	1,607	117	134	3,146	251
Netherlands	11,539	11,590	66	60	68,811	76,728	494	414	134,597	838
Poland	18	33	20	22	66	534	139	187	620	287
Switzerland	3,858	4,279	247	209	25,754	23,049	1,735	1,874	40,248	3,851
Czechoslovakia	77	110	201	302	939	908	1,477	1,479	1,814	2,663
Yugoslavia	637	690	4	2	1,711	1,859	20	31	4,381	57
Canada	11,541	5,362	77	132	24,762	9,515	511	642	55,720	1,274
Australia	243	223	7	11	5,957	9,132	37	35	15,335	77
New Zealand	...	...	...	...	1) 100,661	1) 112,663	1) 0	1) 0	193,489	0
Importing Countries:										
Germany	18	35	4,769	5,384	181	465	35,056	34,584	728	61,661
Austria	461	620	183	163	4,978	4,303	1,202	1,146	7,366	1,724
Belgium	33	22	4,859	4,420	183	148	28,003	28,052	355	50,726
Spain	...	...	...	...	1) 62	1) 66	1) 664	1) 1,279	108	2,524
Irish Free State	174	51	2	4	516	201	68	40	1,027	62
France	1,488	1,462	2,531	2,341	13,563	14,612	18,563	19,121	24,628	34,421
Gr. Brit. and N. Irel.	467	414	23,354	23,204	3,424	3,146	170,779	181,814	5,818	304,980
Greece	37	0	31	95	282	126	262	899	181	1,120
Hungary	49	46	0	0	412	141	0	2	278	4
Portugal	—	—	33	24	—	—	157	201	—	417
Sweden	—	—	161	62	—	—	1,828	657	—	2,502
United States	88	106	5,463	2,831	675	708	29,815	26,736	1,153	48,934
India	0	0	66	75	2	2	551	628	4	1,276
Java and Madura	—	—	...	...	—	—	1) 723	1) 855	—	1,920
Syria and Lebanon	...	...	...	...	1) 134	1) 315	1) 560	1) 558	503	979
Algeria	2	7	739	754	53	86	6,521	6,693	119	13,349
Egypt	...	...	...	...	1) 13	1) 35	1) 3,521	1) 3,336	86	7,330
Tunis	7	7	229	179	88	35	1,554	1,559	46	2,948
Totals	**33,700**	**26,776**	**43,053**	**40,289**	**276,364**	**275,025**	**304,377**	**312,987**	**520,524**	**546,228**

---

1) 2) See notes page 674.

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Cotton. — Thousand centals (1 cental = 100 lbs.).									
Exporting Countries:										
United States	811	1,579	101	33	32,611	26,511	791	536	—	—
Argentina	183	119	—	—	1,030	694	—	—	—	—
Brazil	...	...	—	—	1) 2,822	1) 3,285	—	—	—	—
India	1,179	747	130	148	14,961	12,553	1,285	1,841	—	—
Egypt	...	...	—	—	1) 7,663	1) 7,507	—	—	—	—
Importing Countries:										
Germany	0	84	328	650	573	966	7,264	6,391	—	—
Austria	0	0	53	44	0	4	886	672	—	—
Belgium	93	40	181	192	602	710	2,194	2,070	—	—
Denmark	—	—	15	20	—	—	176	185	—	—
Spain	...	...	...	...	1) 33	1) 49	1) 2,077	1) 1,991	—	—
Estonia	0	0	13	13	0	0	119	117	—	—
Finland	0	0	20	20	0	4	280	287	—	—
France	20	33	487	368	335	617	7,081	4,941	—	—
Gr. Brit. and N. Irel.	139	53	1,358	765	747	710	15,168	11,250	—	—
Greece	0	0	4	22	11	11	110	165	—	—
Hungary	0	0	53	42	0	0	560	489	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	7	4	0	0	97	108	—	—
Norway	0	0	4	4	0	0	71	64	—	—
Netherlands	0	0	86	55	4	4	1,001	847	—	—
Poland	0	0	128	141	4	9	1,614	1,437	—	—
Portugal	—	—	24	26	—	—	560	450	—	—
Sweden	—	—	55	55	—	—	672	624	—	—
Switzerland	0	0	40	33	0	2	549	564	—	—
Czechoslovakia	2	7	134	117	49	73	2,130	1,554	—	—
Yugoslavia	0	0	40	33	0	0	375	320	—	—
Canada	—	—	60	99	—	—	1,358	1,241	—	—
China	...	...	...	...	1) 860	1) 368	1) 875	1) 1,550	—	—
Japan	...	...	...	...	2) 456	2) 545	2) 14,659	2) 14,795	—	—
Algeria	0	0	0	0	0	4	4	4	—	—
Totals	**2,427**	**2,662**	**3,321**	**2.884**	**62,761**	**54,626**	**61,956**	**54,493**	—	—
	Wool. — (Thousand lb.).									
					ELEVEN MONTHS (September 1-July 31)				TWELVE MONTHS (Sept. 1-August 31)	
Exporting Countries:										
Irish Free State	1,775	1,371	108	9	14,158	11,647	509	624	13,486	646
Hungary	51	357	331	143	631	1,687	1,856	3,236	1,867	3,267
Argentina a)	7,707	14,637	—	—	238,021	262,521	—	—	269,664	—
b)	1,993	3,190	—	—	30,254	29,172	—	—	32,207	—
Chile	...	...	...	...	2) 17,359	2) 17,522	2) 908	2) 150	21,918	240
India	3,675	5,483	375	337	53,597	48,398	6,519	6,997	52,505	7,423
Syria and Lebanon	...	...	...	...	1) 3,680	1) 5,262	1) 185	1) 82	5,545	82
Algeria	1,554	844	309	152	13,547	7,048	2,000	2,134	8,177	2,337
Egypt	...	...	...	...	1) 2,952	1) 2,542	1) 62	1) 49	3,574	55
Un. of S. Africa a)	5,053	2,266	...	...	211,356	213,005	1) 97	1) 57	213,563	57
b)	527	728	...	...	5,988	7,749	1) 1,836	1) 1,329	8,620	1,468
Australia a)	23,054	30,999	231	201	724,807	806,046	8,988	3,516	815,232	3,695
b)	5,688	7,763	0	42	60,178	68,707	110	132	73,571	132
New Zealand a)	...	...	...	...	1) 257,556	1) 152,909	1) 90	1) 101	160,673	101
b)	...	...	...	...	1) 42,221	1) 35,869	1) 22	1) 31	46,196	37
Importing Countries:										
Germany a)	18	295	18,146	10,119	386	5,624	172,903	226,067	5,701	235,040
b)	11	97	4,094	3,497	1,140	2,048	31,899	52,519	2,086	55,398
Austria	11	11	1,744	1,409	229	1,030	22,631	16,980	1,038	18,843
Belgium a)	5,031	8,173	13,662	22,752	65,663	96,120	212,634	211,292	99,235	222,639
b)	2,842	1,581	507	410	24,527	18,614	4,813	3,931	20,227	4,405
Denmark	22	26	364	370	359	337	4,711	4,449	401	4,700
Spain	...	...	...	...	1) 4,015	1) 2,606	1) 6,191	1) 9,835	3,128	10,697
Finland	2	0	476	448	205	220	5,245	4,923	220	5,417
France	6,389	4,892	24,959	44,216	50,854	41,235	347,225	345,058	43,863	375,363
Gr. Brit. and N. Irel.	28,980	21,301	42,942	57,883	300,833	290,672	845,930	797,245	317,072	836,329
Greece	309	130	1,349	1,239	1,523	675	10,657	7,066	721	7,568
Italy a)	—	—	—	—	—	—	—	—	628	88,373
b)	—	—	—	—	—	—	—	—	1,186	14,127
Norway	95	77	212	165	1,038	1,237	2,624	2,099	1,329	2,304
Netherlands a)	450	141	899	461	3,102	2,919	6,594	6,045	3,060	6,272
b)	44	86	461	794	1,160	1,435	4,740	7,452	1,501	7,857
Poland	11	13	2,017	3,567	165	110	40,193	33,365	112	36,346
Sweden	—	—	1,550	1,008	—	—	10,517	16,557	—	18,263
Switzerland	24	7	864	2,110	216	194	14,394	20,329	212	22,053
Czechoslovakia	62	77	3,816	1,603	1,003	1,400	40,367	28,098	1,429	33,213
Yugoslavia	403	33	814	670	4,656	1,023	8,408	6,912	1,107	7,690
Canada	82	756	2,185	871	7,456	5,064	21,861	10,699	6,261	11,973
United States	0	0	16,078	18,759	24	24	224,348	126,872	27	147,234
Japan	...	...	...	...	2) 833	2) 306	2) 232,090	2) 163,901	507	224,482
Tunis	99	46	31	31	1,056	895	478	265	983	295
Totals	**95,962**	**105,380**	**138,524**	**173,266**	**2,146,748**	**2,143,872**	**2,302,635**	**2,120,397**	**2,238,832**	**2,416,421**

a) = Wool, greasy; b) = Wool, scoured. — 1) 2) See notes page 674.

Coffee. — (Thousand lb.).

COUNTRIES	JULY 1936	JULY 1935	TWELVE MONTHS (July 1-June 30) 1935-36	TWELVE MONTHS (July 1-June 30) 1934-35	TWELVE MONTHS (July 1-June 30) 1934-35
			EXPORTS.		
Exporting Countries:					
Brazil	...	...	2,046,520	1,773,940	—
India	584	26	26,147	16,517	—
Java and Madura	2,967	6,122	54,351	65,480	—
Importing Countries·					
Germany	0	0	0	66	—
Belgium	110	60	728	159	—
France	4	0	4	9	—
Gr. Britain and N. Ireland	1,501	1,810	23,473	18,962	—
Netherlands	20	518	6,839	11,524	—
Portugal	377	214	3,430	2,712	—
Switzerland	0	0	2	553	—
Canada	29	11	214	115	—
United-States	650	496	8,792	6,625	—
Ceylon	0	0	2	4	—
Syria and Lebanon.	...	..	4	0	—
Australia	2	2	24	73	—
Totals	—	—	**2,170,630**	**1,896,739**	—
			IMPORTS		
Importing Countries					
Germany	32,653	28,241	329,173	327,491	—
Austria	946	977	11,462	12,291	—
Belgium	10,093	7,829	108,970	103,765	—
Bulgaria	108	75	1,100	1,060	—
Denmark	5,622	4,220	56,467	58,238	—
Spain	...	...	52,913	52,117	-
Estonia	46	13	192	163	—
Irish Free State	75	46	606	520	—
Finland.	3,697	3,448	42,428	39,117	—
France	31,628	34,485	425,842	392,517	—
Gr. Britain and N. Ireland	754	935	52,270	57,574	—
Greece	1,334	1,087	13,316	12,604	—
Hungary	280	251	4,398	5,534	—
Italy	—	—	—	—	—
Latvia	11	11	251	143	—
Lithuania	51	20	412	419	—
Norway	2,542	4,420	41,515	35,894	—
Netherlands	1,272	5,126	91,534	62,949	—
Poland	1,415	963	11,718	15,668	—
Portugal	1,885	703	13,336	15,847	—
Sweden	8,457	8,139	105,842	97,506	—
Switzerland	3,309	6,845	38,281	32,476	—
Czechoslovakia	1,642	1,510	23,832	23,810	—
Yugoslavia	732	1,345	15,210	13,770	—
Canada	3,375	2,414	39,196	31,800	—
United States	118,931	147,212	1,853,267	1,551,815	—
Chile	...	...	2) 7,092	2) 4,974	—
Ceylon	373	300	2,738	3,272	—
Japan	...	...	2) 10,307	2) 6,376	—
Syria and Lebanon	...	...	2,390	2,286	—
Algeria	2,533	2,798	32,452	31,171	—
Egypt	...	...	17,324	15,657	—
Tunisia	267	231	3,342	3,382	—
Union of S. Africa	...	...	31,654	26,960	—
Australia	467	421	4,619	3,567	—
New Zealand	...	...	437	456	—
Exporting Countries:					
India	0	0	0	0	—
Totals	**234,498**	**264,065**	**3,445,886**	**3,043,189**	—

Tea. — (Thousand lb.).

COUNTRIES	JULY 1936	JULY 1935	TWELVE MONTHS (July 1-June 30) 1935-36	TWELVE MONTHS (July 1-June 30) 1934-35	TWELVE MONTHS (July 1-June 30) 1934-35
			EXPORTS.		
Exporting Countries.					
Ceylon	19,055	18,188	223,530	213,701	—
China	...	...	76,975	96,477	—
India	30,195	29,143	316,391	327,972	—
Java and Madura.	9,698	9,167	118,230	120,849	—
Japan	...	...	2) 30,223	2) 29,097	—
Importing Countries					
Belgium	0	0	2	9	—
Irish Free State	0	2	22	256	—
France	0	2	18	26	—
Gr.Brit.and N. Irel.	6,431	5,130	72,067	68,831	—
Netherlands	11	7	112	132	—
Syria and Lebanon	...	...	11	9	—
Algeria	0	0	9	93	—
Union of S. Africa.	...	...	320	31	—
Australia	51	51	635	802	—
New Zealand.	...	...	126	112	—
Totals	**65,441**	**61,690**	**838,671**	**858,397**	—
			IMPORTS.		
Importing Countries					
Germany	765	774	10,152	10,216	—
Austria	44	31	789	836	—
Belgium	66	31	562	613	—
Denmark	99	79	1,120	1,230	—
Spain	...	...	249	273	—
Estonia	4	4	95	77	—
Irish Free State	1,596	1,358	21,755	22,816	—
Finland	11	20	276	238	—
France	214	190	2,855	2,189	—
Gr Britain and N. Ireland	31,043	33,150	486,313	507,905	—
Greece	214	22	445	448	—
Hungary.	15	11	430	611	—
Italy	—	—	—	—	—
Latvia.	4	4	71	84	—
Lithuania	0	9	93	77	—
Norway	15	24	362	337	—
Netherlands	2,000	2,438	28,980	30,034	—
Poland	163	282	3,461	3,814	—
Portugal	42	31	443	399	—
Sweden	51	49	1,016	944	—
Switzerland	104	192	1,819	1,609	—
Czechoslovakia	40	46	1,166	1,056	—
Yugoslavia	26	22	381	439	—
Canada	2,266	3,089	44,214	30,287	—
United States	5,997	5,829	83,917	83,571	—
Chile	...	...	2) 4,063	2) 4,687	—
Syria and Lebanon	...	...	298	470	—
Algeria	635	205	2,518	2,897	—
Egypt	...	...	13,980	15,459	—
Tunisia	267	245	6,321	3,417	—
Union of S. Africa	...	...	13,702	13,056	—
Australia	4,389	4,275	41,557	47,095	—
New Zealand.	...	...	10,666	9,374	—
Exporting Countries.					
China	...	...	688	602	—
India	216	445	5,249	3,111	—
Java and Madura.	...	..	955	1,649	—
Totals	**50,286**	**53,255**	**790,961**	**801,920**	—

---

2) See notes page 674.

Cacao. — (Thousand lb.).

COUNTRIES	July 1936	July 1935	Ten months (Oct. 1-July 31) 1935-36	Ten months (Oct. 1-July 31) 1934-35	Twelve months (Oct. 1-Sept. 30) 1934-35
			EXPORTS		
Exporting Countries					
Grenada	.		1) 7,848	1) 7,926	8,836
Dominican Republ.	1,812	11,713	39,597	59,479	62,596
Brazil	...	.	1) 166,626	1) 137,695	224,729
Ecuador	.	. .	1) 37,007	1) 31,949	41,557
Trinidad	1,583	4,484	26,048	41,782	45,748
Venezuela.	. .	..	1) 22,805	1) 20,192	28,464
Ceylon	381	686	5,251	6,552	7,893
Java and Madura .	291	337	2,813	2,304	3,283
Cameroon (Fr. m t)	791	2,509	48,762	46,064	48,956
Ivory Coast . . .	. .		1) 100,930	1) 82,720	97,575
Gold Coast . . .	31,246	24,264	571,034	493,105	541,032
Nigeria and Cameroon (Brit m t)	15,333	14,597	189,049	174,990	184,186
Saint Thomas and Prince Is. . . .	899	571	29,328	19,513	22,073
Togoland (Fr m t)	635	860	18,283	16,984	19,661
Importing Countries					
Germany	0	0	7	88	88
Belgium	0	0	40	176	176
France	0	0	9	2	2
Gr. Brit. and N Irel.	1,814	377	6,887	12,106	15,499
Netherlands . . .	280	172	4,211	3,594	4,643
Australia	13	9	71	401	408
Totals . . .	**55,080**	**60,579**	**1,276,606**	**1,157,622**	**1,357,405**
			IMPORTS		
Importing Countries					
Germany	12,004	10,587	145,294	141,268	165,896
Austria	818	730	10,201	10,778	12,487
Belgium	1,329	2,022	19,396	16,184	20,651
Bulgaria	134	73	1,484	712	805
Denmark	1,254	225	9,156	6,984	8,550
Espagne	...	..	1) 13,287	1) 18,801	22,615
Estonia	15	55	723	584	756
Irish Free State .	121	44	3,179	2,610	2,820
Finland.	7	26	243	212	256
France	8,212	6,920	108,935	76,675	90,919
Gr. Brit. and N. Irel.	5,276	3,514	267,602	183 505	196,128
Greece	375	269	3,049	2,423	2,840
Hungary	593	525	8,338	7,088	8,638
Italy	—	—	—	—	26,652
Latvia	101	77	1,032	1,034	1,235
Lithuania	106	82	952	664	758
Norway	205	470	4,235	6,158	6,731
Netherlands . . .	7,487	9,460	125,761	116,850	134,247
Poland	798	1,254	11,748	14,037	15,845
Portugal	119	57	992	937	1,124
Sweden	968	1,102	10,031	10,712	12,103
Switzerland	818	2,577	16,460	15,148	16,052
Czechoslovakia . .	1,316	1,499	23,878	19,238	23,199
Yugoslavia	212	225	1,711	1,462	1,867
Canada	1,909	2,017	23,294	22,844	25,790
United States. . .	34,877	40,834	488,445	489,547	566,112
Japan	...	...	2) 2,800	2) 2,727	3,311
Australia	353	196	12,106	11,696	14,500
New Zealand . . .	...	...	1) 2,952	1) 2,994	3,393
Totals . . .	**79,407**	**84,840**	**1,317,284**	**1,183,872**	**1,386,280**

Total Wheat and Flour *)

(Thousand centals).

COUNTRIES	July 1936	July 1935	Twelve months (Aug. 1-July 31) 1935-36	Twelve months (Aug. 1-July 31) 1934-35	Twelve months (August 1 July 31) 1934-35
			a) NET EXPORTS		
Exporting Countries					
Germany	174	3)	130	3)	—
Bulgaria	90	0	683	220	—
Estonia	20	18	0	137	—
France	3)	165	3)	10,509	—
Hungary.	1,773	35	9,828	7,604	—
Latvia.	49	366	926	657	—
Lithuania	0	4	1,274	584	—
Poland	269	820	4,048	2,264	—
Portugal . . .	3)	3)	2,161	3)	—
Romania	...	...	1) 3,353	1) 2,055	—
Sweden	216	408	1,133	1,069	—
Yugoslavia . . .	49	24	467	2,551	—
U S. S. R..	..	...	1) 17,018	1) 939	—
Canada	16,702	6,508	152,053	98,518	—
Argentina	2,690	6,799	41,652	108,724	—
Chile	. .	...	2) 1,376	2) 223	—
India	132	57	664	551	—
Syria and Lebanon	...	...	1) 168	1) 179	—
Algeria	335	443	5,875	7,796	—
French Morocco .	...	..	1) 2,890	1) 4,312	—
Tunisia	46	666	2,743	2,822	—
Australia	2,416	4,458	60,133	64,089	—
					—
Totals . . .	**24,961**	**20,771**	**308,575**	**315,803**	—
					—
			b) NET IMPORTS		
Importing Countries					
Germany. . . .	4)	104	4)	6,085	—
Austria	476	705	4,189	5,831	—
Belgium	1,982	1,949	23,391	23,843	—
Denmark . . .	686	683	5,379	10,459	—
Espagne	..	...	1) 0	1) 0	—
Irish Free State .	1,151	829	8,971	10,113	—
Finland	298	254	2,535	2,476	—
France	88	4)	4,786	4)	—
Gr Brit and N.Irel.	10,150	10,221	122,835	119,925	—
Greece.	979	849	8,852	8,726	—
Italy	—	—	—	—	—
Norway	220	421	4,566	5,232	—
Netherlands . . .	1,155	950	12,961	11,588	—
Portugal.	7	51	4)	408	—
Switzerland . . .	5) 985	5) 1,155	5) 10,000	5) 10,748	—
Czechoslovakia . .	7	150	1,314	864	—
Total Europe . .	*18,184*	*18,321*	*209,779*	*216,298*	—
United States . .	2,542	218	22,767	4,015	—
Ceylon	31	29	549	571	—
China	...	...	1) 4,616	1) 11,991	—
Indo-China. . . .	..	...	1) 476	1) 467	—
Japan	...	...	2) 3,009	2) 1,188	—
Java and Madura	...	...	1) 1,585	1) 1,431	—
Egypt.	...	...	1) 90	1) 1,274	—
Union of S. Africa.	...	...	1) 35	1) 538	—
New Zealand. . .	...	...	1) 538	1) 300	—
Totals . . .	**20,757**	**18,568**	**243,444**	**238,073**	—

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1.333,333 centals of grain.
a) Excess of exports over imports — *b*) Excess of imports over exports
1) Data up to 30 June -- 2) Data up to 31 May. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only.

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE

Statistics received too late for inclusion in the tables and statistics for August already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
CHINA		July	July	July	July
Wheat	1000 centals	0	15	20	425
Wheat flour	»	0	0	55	93
Rice	» »	53	2	1 354	2 055
Cotton	»	31	15	42	90
Tea	1000 lb	8 431	6 997	31	60
Wool		2 639	6 892	—	—
NEW ZEALAND					
Butter	1000 lb	28 221	23 748	—	—
Cheese	» »	14 368	9 804	0	0
Wool (a)	» »	3 106	5 348	0	0
Wool (b)	» »	4 941	5 875	0	0
GERMANY		Aug	Aug	Aug	Aug
Wheat	1000 centals	42	0	143	194
Rye		0	0	7	57
Wheat flour	»	33	7	0	0
Barley	»	0	0	26	152
Oats	»	0	0	0	79
Maize	»	0	0	185	265
Rice	»	64	44	540	403
Linseed		0	0	82	922
Butter	1000 lb	0	2	12 769	11 252
Cheese		11	51	6 221	4 738
Cotton	1000 centals	0	66	386	717
Wool (a)	1000 lb	9	77	9 949	8 973
Wool (b)	» »	7	37	4 092	2 879
Coffee	»	0	0	25 098	25 814
Tea	»	0	0	725	899
Cocoa	»	0	0	12 017	9 837
DENMARK					
Wheat	1000 centals	0	0	267	388
Rye		0	0	410	448
Wheat flour		2	2	11	24
Barley	»	9	62	2	71
Oats	»	0	7	2	18
Maize		0	0	492	445
Rice		0	0	2	2
Linseed	»	—	—	42	26
Butter	1000 lb	25 113	25 256	9	0
Cheese	»	1 764	1 171	2	2
Cotton	1000 centals	—	—	11	9
Wool	1000 lb	33	64	212	251
Coffee	» »	—	—	3 752	4 321
Tea	»	—	—	73	93
Cocoa	» »	—	—	520	520
GR BRITAIN AND N IRELAND					
Wheat	1000 centals	225	20	8 382	7 886
Wheat flour	» »	214	269	754	719
Barley	» »	0	0	1 605	1,859
Oats	» »	2	0	331	163
Maize	» »	161	251	6 402	6 041
Rice	» »	26	7	165	119
Linseed	» »	0	0	428	370
Butter	1000 lb	774	637	82 601	96 195
Cheese	» »	639	531	19,531	20 840
GR BRITAIN AND N IRELAND (cont)		Aug	Aug	Aug	Aug
Cotton	1000 centals	84	64	1 146	617
Wool	1000 lb	20 369	26 398	33 391	39 084
Coffee		1 239	4 059	540	719
Tea		5 600	5 417	46 751	42 981
Cocoa		348	2 456	3 832	5,858
HUNGARY					
Wheat	1000 centals	1 806	126	0	0
Rye		161	22	0	0
Wheat flour		88	97	0	0
Barley		7	18	0	0
Oats		13	0	0	0
Maize		0	0	251	589
Rice		0	0	33	9
Linseed		0	0	15	0
Butter	1000 lb	1 107	218	0	0
Cheese		82	7	0	0
Cotton	1000 centals	0	0	40	35
Wool	1000 lb	322	181	44	31
Coffee		—	—	317	207
Tea		—	—	35	18
Cocoa		—	—	721	527
NORWAY					
Wheat	1000 centals	0	0	238	267
Rye	»	0	0	154	454
Wheat flour		0	0	55	44
Barley		0	0	40	9
Oats		0	0	0	0
Maize		0	0	256	476
Rice		0	0	4	4
Linseed		0	0	26	66
Butter	1000 lb	0	0	0	0
Cheese		337	271	18	15
Cotton	1000 centals	0	0	2	4
Wool	1000 lb	73	95	196	207
Coffee		0	0	2 158	3 397
Tea		0	0	22	33
Cocoa		0	0	481	357
NEW ZEALAND					
Butter	1000 lb	12 630	16 462	—	—
Cheese		5 897	10 640	0	0
Wool (a)		2 240	2 416	0	0
Wool (b)		5 650	4 453	0	0
NETHERLANDS					
Wheat	1000 centals	0	0	736	1 089
Rye		15	0	179	143
Wheat flour	» »	0	0	139	68
Barley		11	0	441	606
Oats		0	0	44	55
Maize	»	0	0	1,504	1,221
Rice	» »	247	181	414	205
Linseed	» »	4	7	1 074	381
Butter	1000 lb	13 827	10 911	2	4
Cheese	» »	11 625	12,690	57	60

COUNTRIES PRODUCTS AND UNITS		Exports		Imports	
		1936	1935	1936	1935
NETHERLANDS (*cont.*)		Aug.	Aug.	Aug.	Aug.
Cotton	1000 centals	2	0	77	79
Wool a)	1000 lb	397	141	381	227
Wool b)	» »	75	66	370	406
Coffee	» »	33	712	1,526	8,763
Tea	» »	7	13	2,383	2,500
Cocoa	» »	370	406	9,099	7,921
POLAND					
Wheat	1000 centals	465	84	0	0
Rye	» »	545	529	0	0
Wheat flour	» »	141	95	0	0
Barley	» »	542	201	0	0
Oats	» »	112	26	0	0
Maize	» »	0	0	0	0
Rice	» »	68	29	93	101
Linseed	» »	0	0	0	0
Butter	1000 lb.	3,245	1,550	0	0
Cheese	» »	44	11	11	20
Cotton	1000 centals	0	0	130	126
Wool	1000 lb.	0	0	4,209	2,981
Coffee	» »	—	—	1,023	743
Tea	» »	—	—	227	254
Cacao	» »	—	—	1,248	926
SIAM					
Rice	1000 centals	2,934	2,857	—	—
SWEDEN					
Wheat	1000 centals	443	174	90	51
Rye	» »	4	79	7	2
Wheat flour	» »	2	0	0	0
Oats	» »	0	0	15	0
Maize	» »	0	0	141	240
Rice	» »	—	—	0	7
Linseed	» »	—	—	71	64
Butter	1000 lb.	3,922	5,016	0	0
Cheese	» »	—	—	196	106
Cotton	1000 centals	—	—	37	53
SWEDEN (*cont.*)		Aug.	Aug.	Aug.	Aug.
Wool	1000 lb.	—	—	1,806	1,706
Coffee	» »	—	—	7,948	8,415
Tea	» »	—	—	93	66
Cacao	» »	—	—	1,012	842
SWITZERLAND					
Wheat	1000 centals	0	0	732	692
Rye	» »	0	0	15	9
Barley	» »	0	0	82	79
Oats	» »	0	0	260	331
Maize	» »	0	0	99	146
Rice	» »	0	0	22	35
Butter	1000 lb.	0	0	20	11
Cheese	» »	2,509	3,230	238	247
Cotton	1000 centals	0	0	33	20
Wool	1000 lb	40	18	1,579	1,724
Coffee	» »	—	—	2,101	3,812
Tea	» »	—	—	115	141
Cocoa	» »	—	—	326	295
CZECHOSLOVAKIA					
Wheat	1000 centals	0	0	0	174
Rye	» »	0	0	0	2
Wheat flour	» »	0	0	0	0
Barley	» »	62	2	0	0
Oats	» »	29	42	0	0
Maize	» »	0	0	302	53
Rice	» »	0	0	88	101
Linseed	» »	0	0	15	24
Butter	1000 lb.	0	0	0	0
Cheese	» »	55	99	276	262
Cotton	1000 centals	9	4	159	137
Wool	1000 lb.	71	29	2,765	5,115
Coffee	» »	—	—	1,931	1,894
Tea	» »	—	—	99	99
Cocoa	» »	—	—	1,354	1,343
GOLD COAST					
Cacao	1000 lb.	36,676	27,335	—	—

a) Wool, greasy — b) Wool, scoured.

STOCKS OF GEREALS

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	Sept. 1936	August 1936	July 1936	Sept 1935	Sept. 1934
	1,000 centals				
WHEAT:					
Canadian in Canada	76,397	59,696	72,143	105,173	110,224
U. S in Canada	0	0	0	0	0
U. S. in the United States	48,629	40,383	13,897	37,497	73,428
Canadian in the United States	10,985	11,470	9,368	11,143	6,062
Of other origin in the United States	0	0	0	3	0
Total	*136,011*	*111,549*	*95,408*	*153,816*	*189,714*
RYE:					
Canadian in Canada	1,487	1,595	1,834	1,833	2,225
U S. in Canada	0	0	0	0	0
U. S. in the United States	3,737	3,405	3,769	3,954	6,607
Canadian in the United States	314	193	169	15	58
Of other origin in the United States	0	0	0	1,417	7
Total	*5,538*	*5,193*	*5,772*	*7,219*	*8,897*
BARLEY:					
Canadian in Canada	5,508	2,499	2,770	1,708	4,589
U. S. in Canada	0	0	0	0	0
U. S. in the United States	7 365	4,728	5,074	4,145	6,367
Canadian in the United States	322	187	0	108	124
Of other origin in the United States	0	0	0	0	0
Total	*13 195*	*7,414*	*7,844*	*5,961*	*11,080*
OATS:					
Canadian in Canada	3 734	2,708	2,457	1,958	3,631
U S in Canada	51	0	73	0	58
U S. in the United States	16,596	12,436	9,939	8,193	8,430
Canadian in the United States	0	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total	*20,381*	*15,144*	*12,469*	*10,151*	*12,119*
MAIZE:					
U S in Canada	92	108	40	100	3,253
Of other origin in Canada	203	457	463	1,236	96
U S. in the United States	2,541	2,417	3,912	3,167	34,369
Of other origin in the United States	0	0	0	956	0
Total	*2,836*	*2,982*	*4,415*	*5 459*	*37,718*

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	Sept 1936	August 1936	July 1936	Sept 1935	Sept. 1934
	1,000 centals				
Wheat (and flour in terms of grain)	14,232	12,355	16,032	11,136	22,771
Rye	274	336	514	202	216
Barley	2,684	1,564	1,416	2,380	2,732
Oats	278	592	560	710	1,184
Maize	14,482	14,654	12,499	16,776	16,008

AUTHORITY: *Broomhall's Corn Trade News.*

Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1 000 centals				
WHEAT					
Grain		12 064	28 578	27 617	31 542
Flour for bread		1 814	2 496	3 221	2 304
TOTAL 1)		*14 584*	*22 044*	*32 090*	*34 741*
RYE					
Grain		7 403	10 858	25 578	19 601
Flour for bread		529	902	1 956	1 803
TOTAL 1)		*8 178*	*12 183*	*28 453*	*22 253*
BARLEY		2 344	840	4 180	3 161
OATS		2 262	3 075	3 206	939

1) Including flour in terms of grain on the basis of the coefficient 1 000 centals of wheat flour = 1,388 89 centals of wheat 1,000 centals of rye flour = 1 470 59 centals of rye

Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	Sept 1936	August 1936	July 1936	Sept 1935	Sept 1934
	1 000 centals				
WHEAT					
Grain	8 664	4 632	5,400	3 888	7 008
Flour as grain	960	768	744	600	768
TOTAL	*9 624*	*5 400*	*6 144*	*4 488*	*7 776*
BARLEY	1 480	1 000	1 160	780	960
OATS	240	176	240	272	208
MAIZE	6 288	2 328	3 072	2 832	2 184

1) Imported cereals
AUTHORITY *Broomhall s Corn Trade News*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	Sept 1936	August 1936	July 1936	Sept 1935	Sept 1934
	1 000 centals				
WHEAT					
Antwerp	583	496	494	420	1,030
Rotterdam	508	530	348	179	1,184
Amsterdam	23	28	44	12	30
RYE					
Antwerp	54	28	15	38	18
Rotterdam	42	39	8	119	181
Amsterdam	0	0	0	0	0
BARLEY					
Antwerp	43	40	102	213	91
Rotterdam	4	22	55	30	160
Amsterdam	0	0	0	5	27
OATS					
Antwerp	11	44	55	90	32
Rotterdam	9	12	12	0	61
Amsterdam	30	32	34	32	25
MAIZE					
Antwerp	52	20	26	44	332
Rotterdam	15	14	17	66	132
Amsterdam	7	2	3	15	39

---

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo, Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam* Rotterdam

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	August 1936	July 1936	June 1936	August 1935	August 1934
	1,000 centals				
n consuming establishments	3,669	4,383	4,818	3,146	5,257
In public storage and at compresses	22,617	19,166	22,105	28,784	28,342
TOTAL	*26,286*	*23,549*	*26,923*	*31,930*	*33,599*

Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	Sept 1936	August 1936	July 1936	Sept. 1935	Sept. 1934
	1,000 centals				
Bombay 1)	2,760	3,116	3,164	2,152	3,508
Alexandria 2)	258	613	979	439	964

1) Stocks held by exporters, dealers and mills. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES: *East Indian Cotton Assn* and *Commission de la Bourse de Minet-el-Bassal.*

Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	Sept 1936	August 1936	July 1936	Sept. 1935	Sept 1934
	1,000 centals				
Great Britain:					
American	1,123	1,391	1,411	704	1,574
Argentine, Brazilian, etc	841	599	409	179	837
Peruvian, etc.	229	165	126	348	505
Eat Indian	323	354	341	239	356
Egiptian, Sudanese	863	852	973	867	1,363
W. Indian, W. and E. African, etc	156	163	167	126	288
TOTAL	*3,535*	*3,524*	*3,427*	*2,463*	*4,923*
Bremen:					
American	442	550	669	539	1,622
Other	282	282	309	433	229
TOTAL	*724*	*832*	*978*	*972*	*1,851*
Le Havre:					
American	356	468	555	233	571
French colonies	26	20	17	18	38
Other	184	183	138	87	102
TOTAL	*566*	*671*	*710*	*338*	*711*
***Total Continent* 1):**					
American	1,037	1,410	1,735	1,147	2,685
Argentine, Brazilian, etc.	393	283	256	282	168
East Indian	221	237	220	217	203
Egyptian	109	169	222	173	114
W. Indian, W. and E. African, etc.	132	168	158	196	160
TOTAL	*1,892*	*2,267*	*2,591*	*2,015*	*3,330*

1) Includes Bremen, Le Havre, and other Continental ports.

AUTHORITIES: *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

Description	11 Sept 1936	4 Sept. 1936	28 August 1936	21 August 1936	Average August 1936	Average Sept 1935	Average Sept 1934	Commercial Season 1) 1935-36	Commercial Season 1) 1934 35
Wheat.									
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	6) 15 48	15.22	15,02	14 98	15.07	15.85	16 42	16.78	16.67
Braila: Good quality (lei p. quintal)	..	..	460	460	450	405 85	n. q.	* 460	* 402
Winnipeg: No 1 Manitoba (cents p. 60 lb.)	101 5/8	98 1/4	95 3/4	99 3/4	101	90 1/2	82 1/4	85	81 7/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	114 3/4	118 1/4	119	120 3/8	120 1/4	116 1/8	n. 111 7/8	109 3/4	104 1/4
Minneapolis: No 1 Northern (cents p. 60 lb.)	134	131 3/4	129	132 5/8	133 1/4	129 1/8	116 3/8	119 1/2	110 7/8
New York: No 2 Hard Winter (cents p. 60 lb.)	128	126 3/8	122 3/4	127 3/8	125 1/8	127 1/8	116 3/4	124 1/4	113 1/8
Buenos Aires (*a*): Barletta, 80 kg. p. hectol (paper pesos p. quintal)	11 05	11.20	11.65	11 95	12.02	8 64	7.35	9 53	6.86
Karachi: White Karachi 2% barley, 1 ½ % impurities (rupees p. 656 lb.)	28-6-0	27-5-0	28-0-0	28-4-0	27-15-9	23-1-6	20-14-3	24-7-6	22-5-9
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 2)	6) 19 60	6) 19 60	6) 19 40	6) 19 40	20.40	6) 19 60	6) 19 60	20.53	20.29
Hamburg (c. i f.; Rm. p. quintal):									
No. 1 Manitoba	10 93	10 65	7) 11 82	11 07	11 53	9 86	9 03	9.51	8 95
Barusso (80 kg. p. hl.)	10 63	10.57	8) 10 99	11 16	11 04	8 00	7 02	8 74	6 50
Antwerp (francs p. quintal):									
Home-grown	6) 114 00	6) 116 00	130 00	130 00	128 25	86 50	6) 67 60	100.90	69.10
No. 1 Manitoba (Atlantic) (in bond)	122 50	123 00	128.50	130 00	129 35	112 25	78 10	100 80	86.10
Barusso (in bond)	124.00	129 00	124 00	125 50	124 35	92 25	56 55	103 10	60 90
Paris: Home-grown (delivery regional depots, 76 kg p. hl; frs. p. quintal) 3)	6) 144 00	6) 144 00	n q	n q	* 111 15	6) 87 65	6) 111 00	89.95	91 50
London (Mark Lane): Home-grown (sh p 504 lb on the farm)	33	31 6	31/6	36 6	* 34 10	24/3	21 9	27/5 1/4	22/4 1/2
Liverpool and London (c.i.f., parcels, shipping current month, sh. p. 480 lb.)									
French (on sample)	n. q.	n. q	n. q	n. q	n. q.	n q.	6) 22 –	* 25/–	* 19/8
South Russian (on sample)	n q.	n q	n q.	n q	n q	29 4 1/2	n. q.	* 29/–	n q.
No 1 Northern Manitoba (Atlantic)	36 6 3/4	35 9	36/3	37 3	37 11 1/4	34 0 1/2	31 7 1/2	32/9	31/7 3/4
No 1 Northern Manitoba (Pacific)	36 6 3/4	35 11 1/4	36 4 1/2	37 4 1/2	38 2 1/4	33 11 1/2	32/3 1/4	32/5 1/2	31/2 3/4
No. 3 Northern Manitoba (Pacific)	35 4 1/2	34 7 1/2	35 1 1/2	36 3	36 10 1/2	31/4 3/4	30 1 1/2	30/5 3/4	28/5 3/4
White Pacific	n. 35 6	35 –	8) 35 6	8) 36 9	8) 36/6 3/4	n q	n. q.	n. q.	n q.
Rosafé (afloat) 4)	9) 33 1 1/2	9) 33/6	9) 34 3	9) 36 3	9) 34 10 1/2	29/–	23 10 1/2	* 28/9	22/3 1/2
West Australian (cargoes)	38 6	38 6	7) 38 6	7) 39 –	7) 39 1 3/4	* 31/–	27 9 3/4	* 30/2 1/2	26/3 3/4
New South Wales (cargoes)	37 6	37 6	7) 37 6	7) 38 –	38 4	29/3	27 2 1/4	* 29/9	* 25/7
Milan (*b*). Home-grown, soft, "Buono mercantile" 76-78 kg p. hl. (lire p. q.) 5)	6) 123.00	6) 123.00	6) 123 00	6) 123 00	6) 121 20	109 00	85 70	114 20	95.80
Genoa. Sicilian Durum (c.i.f., lire p quint.)	n. q	n. q.	n. q.	n q	n. q	n. q.	107.00	n. q.	* 113 05
Genoa (c.i.f.; U. S. $ p. quintal):									
No. 2 Manitoba (Pacific)	n. q.	n q.	n. q.	n q	n q	n. q.	3 56	n. q.	* 3 38
No. 2 Canadian Durum 1	n. q.	n q	n. q.	n q.	n. q.	n. q.	4 24	n. q.	* 4.09
Bahia Blanca, 79 kg p hl. (sh p. 1000 kg.)	n. q.	n. q	n. q.	n. q.	n q.	n q	119/3	n q	* 111/–
Rye.									
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 2)	6) 15 90	6) 15 90	6) 15.70	6) 15 70	6) 15 70	15 90	15 60	16 68	16 29
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg p hl.	6 50	6 27	7) 6 29	6 42	6 36	4 91	7 00	5 27	5 76
Budapest: Pest rye (pengő p. quintal)	n q	12 25	12.55	12 33	12 42	14 00	12 37	14 45	12 08
Warsaw: Good quality (zloty p. quintal)	14 62	14 62	14 38	14 12	14 36	12 87	17 25	13 25	14.82
Winnipeg: No. 2 (cents p. 56 lb.)	68 5/8	67	65 3/4	68 1/4	66 1/8	40 [illegible]/8	65 1/4	43 3/4	52 7/8
Minneapolis: No. 2 (cents p. 56 lb.)	84 5/8	83 1/2	80 3/4	82 3/4	81 1/4	47 1/4	85 1/4	53 1/2	67 7/8
Groningen (*c*): Home-grown (fl. p. quintal)	7,40	7 40	7 42	7 75	* 7 60	6 63	7 41	* 7.08	7 35

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*
a) Thursday prices. — *b*) Saturday prices. — *c*) Prices on preceding Tuesday.

1) August-July. — 2) From 16 Aug. 1934, for wheat, and. July 1934, for rye, fixed producers' prices for the *price region* f Berlin city, See *Govt. Measures*, No. 2, p. 57 and this *Crop Report* p 609. — 3) Until 25 Dec 1934, minimum prices on the im increased by transport costs; Jan.-Aug. 1935, spot quotations in the free market until 31 Aug 1935, Sept 1935-Aug. 1936, prices in the regulated market, delivery current month; subsequently, fixed producers' prices (see note on p 691) — 4) Aug-Dec 934, 64 lb. p. bushel, then 63 ½ lb — 5) See note p 609 (*Crop Report of August 1936*) — 6) New crop — 7) Shipping Sept 8) Shipping Sept.-Oct. — 9) Shipping Jan-Feb

DESCRIPTION	11 Sept 1936	4 Sept. 1936	28 August 1936	21 August 1936	AVERAGE August 1936	Sept. 1935	Sept. 1934	Commercial Season 1) 1935-36	1934-35
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	5) 20.75	5) 20.75	5) 20 50	5) 19.00	5) * 19.50	15.81	21.25	* 15.97	19.60
Braila: Average quality (lei p. quintal)	...	...	215	240	230	244	282	* 237	* 244
Prague: Malting, av. qual. (crs. p. quintal) 2)	5) 126.50	5) 126.50	5) 125.00	5) 125 00	5) 125.00	126.50	126.50	* 131.70	131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	55 1/4	53 1/4	51 7/8	55 3/4	56 3/4	33 1/2	57 7/8	34 3/4	45 3/8
Chicago: Feeding (on sample; cents p. 48 lb.)	61	65	66	70	65 1/2	45 1/2	82	45 1/4	72 1/2
Minneapolis: No. 2 Feeding (c. p. 48 lb.)	75 1/2	73	69	75	73 3/4	40 1/2	80 3/4	39 1/8	67 1/2
Berlin: Home-grown fodder (free at Brandenburg stations; Rm. p. quint.) 3)	5) 16.20	5) 16.20	5) 16.00	5) 16.00	5) 16.00	5) 16.20	15.50	17.08	16.16
Antwerp: Danubian (in bond; francs p. q.)	93.00	92.00	91.50	91.50	90.25	72.25	73.50	74.10	69.45
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	5)41/-	5) 41 -	n. q.	n. q.	n. q.	43/-	45/-	38/3	38/-
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	19/3	18/9	19/8 1/4	20/3	19,9 1/2	n q.	23/1 3/4	*15/3	*19/2 1/4
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	15/4 1/2	n. q.	*14/10	n. q.
Canadian No. 3 Western	22/10 1/2	22/8 1/4	23/3	24/10 1/2	26 2 1/2	16 10 3/4	25/1	18/0 1/2	21/10 1/2
Californian malting (sh. p. 448 lb.)	39/6	n. 38/6	n.38/1 1/2	n.38/-	36 9	*21/-	34/7 1/2	24/8 3/4	*31/6
Plata (64-65 kg. p. hl)	6)19/3	6) 18/9	7) 19/7 1/2	7)20/3	7) 20/1	15/10	22/1	15/11 1/2	18/4
Persian (Iraquian)	8)18/10 1/2	8) 18/7 1/2	9) 19 3	9)19/10 1/2	9) 19 5 1/4	15 4	22/8 1/4	15/4 1/4	18/6
Groningen *a*): Home-grown, winter (fl. p q.)	5 57	5.45	5 57	5.67	5.65	4 58	5 35	4.91	5.30
Oats.									
Braila: Good quality (lei p. quintal)	..	..	5) 220	5) 240	5) 230	272	n. q.	* 294	n q
Winnipeg: No. 2 White (cents per 34 lb.)	44 3/4	44 5/8	47 1/8	49 1/2	49	36 1/4	45 3/8	34 3/4	42 3/4
Chicago: No. 2 White (cents per 32 lb.)	46	44 1/2	45 7/8	46 1/8	45 3/4	32 7/8	57 3/4	32 1/4	50 [illegible]/8
Buenos Aires *b*): Current quality (paper pesos p quintal)	5.95	5,60	6 10	6.40	6 32	7 17	5 72	* 6.38	5 39
Berlin: Home-grown (free at Brandenburg stations; Rm p. quint.) 3)	5) 15 80	5) 15 80	5) 15 80	5) 15 80	16 70	5) 15 80	5) 15 70	16 79	16.39
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal)	94 60	90.75	89 00	91.00	90 35	48 95	59 25	66 40	48 50
London (Mark Lane): Home-grown white (sh. p. 336 lb., on farm)	18 6	18 6	19/6	21/6	20 9	19 1 1/2	19 -	18/7 1/2	20 10
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):									
Canadian, No 2 Western (Pacific) 4)	21/6	21 9	23 1 1/2	23 9	23 11 1/2	* 18 4	22 7 3/4	18 7 1/2	20/10 1/2
Plata (f. a. q.)	14 9	14 3	14 10 1/2	15 6	15 4	16/4 3/4	13/9	14/5	13/0 1/2
Milan (*c*) (lire p. quintal):									
Home-grown	93 50	92.50	91 00	90 00	88.10	98 75	57 50	* 97.10	61.25
Foreign	95 00	93 50	92 00	92 00	91.40	n. q.	57 60	92.60	60 45
Maize.									
Braila: Average quality (lei p. quintal)	..	...	272	280	278	226	245	238 1/2	220
Chicago: No. 3 Yellow (cents p. 56 lb.)	112 1/4	110 1/8	112 1/8	116 3/4	113 1/8	83 1/8	79 7/8	72 5/8	78 1/2
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	6.07	5.92	6 00	6.30	6 13	4 53	6 92	4.51	5.72
Antwerp (in bond; francs p. quintal):									
Yellow Plata	85 50	87.25	91 00	90.00	85.25	55.00	56 35	56.25	53.70
Cinquantino (Argentine "Cuarentino")	86 00	85 50	92 00	91 00	87.50	58 10	59.50	60.45	58.25
Liverpool and London (c.i f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian	n. 24/-	n. q.	24 -	n q.	n. q.	n. q	23 5 1/2	*16/11	* 21/-
Yellow Plata	22/9	22/1 1/2	22 6	28 6	23 11 1/2	15/11 1/4	22/6 3/4	16/0 1/2	19/8 1/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	10)16/5 1/4	24/4 3/4	*17/-	21/4 1/2
Milan (*c*). « Alto Milanese » (lire p. quint.)	85.00	11) 91.00	94 50	96.50	93.10	80 25	46 75	81.75	58.50

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. (From August 1935, barley of good quality, not less than 68 kg. per hl) see note p. 609. — 3) From 16 July 1934 for fodder barley, and from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, N° 2, p. 57, and, this *Crop Report* p. 609. — 4) Aug.-Dec. 1934 and from May 1935, Atlantic. — 5) New crop — 6) New crop, shipping Jan.-Feb — 7) 61-62 kg. p. hl., shipping Sept — 8) Shipping Oct. — 9) Shipping Sept — 10) Shipping Oct.-Nov. — 11) "Alto" and "Basso Milanese".

DESCRIPTION	11 Sept. 1936	4 Sept. 1936	28 August 1936	21 August 1936	Average: August 1936	Average: Sept. 1935	Average: Sept. 1934	Average: Commercial Season 1) 1935	Average: Commercial Season 1) 1934
Rice (milled)									
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	55.50	46.75	56.60	46.95
Milan (*b*) (lire p. quintal):									
Vialone, oiled	172.50	173.50	173.50	173.50	174.00	153.00	153.50	159.20	177.10
Maratelli, oiled	154.00	159.50	159.50	159.50	159.60	138.00	122.00	136.60	138.05
Originario, white	125.00	125.00	125.00	125.00	125.00	132.35	102.90	121.75	102.80
Rangoon (rupees and annas p. 7500 lb.):									
No. 2 Burma	250-0	250-0	250-0	252-8	252-8	262- 8	245-0	253-8	201- 2
Small mills specials	230-0	227-8	230-0	235-8	233-2	231-10	217-0	227-4	174-12
Big mills specials	220-0	220-0	222-8	225-0	224-6	225- 6	205-6	219-9	167-13
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white, 25 % brokens	...	...	5.21	5.21	5.21	4.40	4.00	4.18	3.25
No. 2 Japan, 40 % brokens	..	...	4.88	4.96	4.98	4.12	3.83	3.96	3.09
Marseilles (*a*): No. 1 Saigon (c. i. f.; frs. p. quintal)	64.00	63.50	63.00	63.00	66.25	63.25	54.25	54.80	45.95
London (*a*) (c. i. f.; shillings p. cwt.):									
No. 3 Spanish Belloch, oiled	n. q	n. q.	n. q.	n. q.	n. q.	* 12/2	* 10/1½	* 12/7	*10/9
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11/9¾	* 14/0½	11/10¼
American Blue Rose, extra fancy	n. q.	n. q.	n. q.	n. q.	n. q.	13/9¼	17/9	* 15/5¾	17/3⅛
No. 2 Rangoon or Bassein (Burma)	8/1½	8/1½	8/0¾	8/–	8/–	8/1	8/0¼	7/8	6/7¾
No. 1 Saigon	9/–	9/–	9/–	9/–	9/–	7/10½	7/7	7/5¼	6/3¼
Siam Super, white	9/–	9/–	9/4½	9/3	9/3	9/9	8/8½	9/2¾	7/5
Tokyo: Chumai (brown Japanese, average quality, yen p. koku)	..	..	...	...	...	31.67	28.60	29.87	26.09
Linseed.									
Buenos Aires (*a*): Current quality (paper pesos p. quintal)	14.95	14.80	15.10	15.10	15.60	12.99	13.39	12.28	12.74
Bombay: Bold (rupees p. cwt.)	7-5-0	7-11-6	8-1-0	8-2-0	8-7-6	6-11-3	6-7-9	6-10-8	6-7-8
Antwerp: Plata (in bond; frs. p quint.)	173.00	172.00	176 50	178.50	177.00	141.00	109.90	127.55	107.60
London (c. i. f.; £ p. long ton):									
Plata (delivery Hull)	11-17-6	11-15-0	11-18-9	12- 2-6	12- 5-9	n. 9-16-3	10-10-0	9-13-2	10- 0-8
Bombay Bold	13-18-9	14- 0-0	1 -5-0	14- 7-6	15-1-10	12- 7-6	11-19-1	12- 5- 5	11-17-0
Duluth: No. 1 Northern (futures market quotations; cents p. 56 lb)	210	205	3) 209¼	3) 206½	3) 210¼	165½	188¼	172¼	186⅛
Cottonseed.								1935-36	1934-35
Alexandria (piastres p. ardeb):									
Upper Egypt	4) 71 0	4) 68.5	4) 78.6	4) 80 2	4)* 81 0	4) 63 2	4) 47.9	69.7	62.0
Sakellaridis	n q.	n. q.	n. q	n. q.	n. q.	4) 58.2	4)* 43.8	* 64.0	57.7
London: Sakellaridis (c.i f., delivery Hull; £ p. long ton)	4)n.6-17-6	4)n.6-17-6	n. q.	n. q.	* n. 8-15-0	)n.6-4-4	4) 4-17-2	n. 6-13-7	5-18-7
Cotton.									
New Orleans: Middling (cents p. lb.)	12 52	12.00	11.75	11.83	12.07	10.69	13 00	11.64	12.47
New York: Middling (cents p. lb.)	12 55	12.04	11 78	12.03	12.22	10.80	12.99	11.74	12.46
Bombay (rupees p. 784 lb.):									
Broach, f. g. (futures-market quotations)	5) 218¾	5) 212¼	5) 210½	221	220⅝	200½	217⅜	210¼	230¼
Broach, f. g. (spot)	n. q	n. q.	225	222	225¼	220¾	213¼	* 220¾	233¼
Oomra, fine (spot)	n. q	n q.	n. q.	n. q.	n. q.	195¼	190¼	198¾	208½
Alexandria (talaris p. kantar):									
Sakellaridis, f. g. f.	17.65	17.25	17.55	17.30	17.82	14.32	14.79	16.11	15.20
Ashmuni-Zagora, f. g. f. 2)	12.82	12.55	12.55	13.15	13.45	12.00	12.85	13.61	13.34
Bremen: Middling (U. S. cents p. lb.)	14.67	14.09	14.16	14.41	14.61	13.02	14.85	13.88	14.38
M. g. Broach, f. g. (pence p. lb.)	n. 5.65	n. 5.60	n. 5.60	n. 5.60	n. 5.65	n 6.00	n. 5.42	n. 5.86	n. 6.04
Le Havre: Middling (Gulf; frs p. 50 kg.)	256.50	246.00	246.50	248.50	251.60	222.85	255 25	240.00	250.75
Liverpool (pence per lb.):									
Middling, fair	n. 8.09	n 7.80	n. 7.80	n. 7.84	n. 7.94	n. 7.30	n. 8.11	n. 7 58	n. 7.95
Middling	6.99	6.70	6.70	6.74	6.84	6.30	7.06	6 53	6.94
São Paulo, g. f.	6.99	6.70	6.70	6.76	6.81	6.45	7.05	6 81	6.99
Broach, good staple, f. g.	n. 5.63	n. 5.38	n. 5.33	n. 5.29	n. 5.38	5.20	5.27	5.43	5.61
C. P. Oomra, superfine	5.79	5.54	5.49	5.54	5.60	5.27	5.37	5.61	5.73
Egyptian Sakellaridis, f g. f.	10.74	10.31	10.28	10.34	10.71	8.29	8.42	9.18	8 52
Upper Egyptian, f. g. f.	7.63	7.52	7.86	8.00	8.09	7.21	7.28	7.49	7.55

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) From August 1935, Ashmuni, f. g. f. quality only. — 3) September futures. — 4) New crop. — 5) April-May futures.

DESCRIPTION	11 Sept. 1936	4 Sept. 1936	28 August 1936	21 August 1936	AVERAGE				
					August 1936	Sept. 1935	Sept. 1934	Commercial Season	
								1935	1934
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English, N° 1, lean sizable	97/-	99/-	99/-	98/-	98/9	85/3	96/1	89/11	91/2
Danish, N° 1, sizable	100/-	100/-	100/-	100/-	100/-	85/-	94/4	88/6	87/11
Irish, N° 1, sizable	91/6	95/6	96/-	98/-	98/1	84/-	94/1	88/8	90/5
Lithuanian, N° 1, sizable	87/-	91/-	91/-	91/-	92/-	80/9	86/6	82/1	82/-
Dutch, N° 1, sizable	94/-	96/-	96/-	96/-	97/-	82/3	86/9	85/4	84/-
Polish, N° 1, sizable	87/-	91/-	91/-	91/-	92/-	78/9	86/3	80/-	80/11
Swedish, N° 1, sizable	94/-	96/-	96/-	96/-	97/-	81/9	88/4	85/2	84/4
Canadian, N° 1, sizable	87/-	91/-	91/-	91/-	92/-	78/9	86/9	79/3	80/3
Butter.									
Copenhagen (*b*): Danish (crs. p. quint.)	227.00	227.00	227.00	227.00	225 50	225 00	180.00	192.30	160 75
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p.kg) 1)	58	61	63	63	5) 62	58	43	48 7/8	44 3/8
Germany (*c*) (fixed prices; Rm. p. 50 Kg.) 2):									
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	131 00	130.00	129.04
Creamery butter	123 00	123.00	123.00	123.00	123.00	123.00	122 00	123.00	120.87
London (*d*): English creamery, finest quality (shillings p cwt.)	142/4	142,4	142/4	142/4	140/-	132/2	114/4	119/6	109/6
London, Provision Exchange (*a*) (shillings, p. cwt).									
Danish creamery, unsalted	128/	128/-	128/-	128/-	127/3	126/3	106/3	112/9	98/8
Estonian, unsalted	104/-	108/-	112/-	n. q.	* 110/9	n q	60/3	* 81/11	* 67/11
Latvian, unsalted	n q	n q	n. q.	n. q.	n. q	n. q.	60/6	* 86/1	* 69/3
Dutch creamery, unsalted	103/-	108/6	110/-	112/-	110/6	101/7	69/10	93/4	80/4
Argentine, finest, unsalted	101/-	107/-	110/-	108/-	108/-	n. q.	n. q.	* 82/10	* 68/3
Siberian salted	105/-	109/-	112/6	112/6	111/1	99/1	61/8	* 90/7	* 66/-
Australian, finest, salted	108/6	114/-	118/6	120/6	118/-	109/10	71/1	89/7	70 2
New Zealand, finest, salted	109/6	114/6	119/-	121/6	118/10	110/3	72 3	91/11	72 7
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1934 3)	6) 845 00	6) 845 00	875 00	875 00	872 50	746 25	731 00	775 45	724 30
Parmigiano - Reggiano, 1st quality, production 1935 3)	7) 785 00	7) 785 00	845.00	845.00	842 50	687 50	551 25	743.25	615 60
Green Gorgonzola, mature, choice	620 00	620.00	610.00	585 00	583 75	568 75	403.75	508.90	412.60
Rome. Roman Pecorino, choice (lire p q) 4)	8) 975 00	8) 975 00	1,162.50	1,162 50	1,162 50	912 50	593 50	865.50	658.65
Alkmaar. Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	16.50	16 50	16 50	17.50	17.87	20 25	18.20	14.84	18.64
Gouda: Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p. 50 kg)	21 50	21 50	22 00	22 00	22.00	24.25	23.25	19.75	22.52
Kempten (*c*) (Rm. p. 50 kg.)									
Soft cheese, green, 20 % butterfat	26.00	26 00	26 00	26.00	26.00	26 00	26.00	26.00	23.25
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80 00	80.00	80 00	80.00	80.00	71 00	77.00	71.50
London, Provision Exchange (*a*) (shillings, p cwt):									
English Cheddar, finest farmers	79/-	78/-	78 -	78/-	75/6	63/10	82/-	* 77/8	* 83 5
English Cheshire, Nat. Mark Selected.	77/-	74/8	75/10	74/8	73/9	78/9	70/-	80/5	83/4
Italian Gorgonzola (*d*)	n q.	n. q.	n q	n q	n. q	109/11	79/-	* 102/2	82/9
Dutch Edam, 40 + (*d*)	48/6	49/6	49/6	48/-	49/3	55/10	54/-	44/4	54/5
Canadian, finest white	9) 71/-	9) 71/6	9) 71/-	9) 69 3	9) 67/11	9) 55/1	9) 50/10	60/3	54/-
New Zealand, finest white	68/9	70/-	72/-	70/6	68/7	54/9	47/10	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q = *not quoted*. — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices — *c*) Wednesday prices. — *d*) Average prices for the week.

1) Home prices are increased by a consumers'-duty which was, from 1 8 0 80 — 2) See note page 306 of the *Crop Report* April 1934 — 3) Prices of 1933 cheese are compared, for the preceding years, with those of cheese made in 1932 and 1931 respectively, prices of 1934-cheese with those of cheese made in 1933 and 1932 The yearly averages refer to the périods from Sept to August. — 4) From 27 September 1935, export prices — 5) 6 august (revised): 50 — 6) 1934-cheese — 7) 1935-cheese 8) 1935-36 chese — 9) New make

Description	11 Sept 1936	4 Sept 1936	28 August 1936	21 August 1936	Average				
					August 1936	Sept 1935	Sept 1934	Commercial Season 1)	
								1935	1934
Eggs.									
Antwerp, auction: Belgian, average qual (frs. p. 100)	60.00	54 00	56.00	54.00	53 00	58 75	52 00	48.35	42.80
Denmark (*a*): Danish for export (crs. per quintal)	126 00	116 00	110 00	110 00	104 00	123 60	126.00	106.75	103.60
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):									
Fixed price for export into Germany	...	...	...	. .		4 10	4 00	3 75	3.96
Price for other destinations	...	...	...	...	.	3 27	3 29	2.97	3.34
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	83 50	76 00	68 00	70 00	6) 76 50	96 87	88 75	104 43	106.50
Berlin (*c*) German, big, new laid (Rm. p 100)									
marked «G I S», 65 gr. each	12.00	12 00	12 00	12 00	12 00	11.50	10 12	10.57	10.37
marked «G I B», 55/60 gr each	10 00	10 00	10.00	10 00	10 00	10 00	8 75	9.34	9.03
London, Egg Exchange (*d*) (sh. p. great hundred)									
English, National Mark, specials	18/6	18/-	18/-	18 -	17/7 ¼	18/7 ½	16/7 ½	15/9	15/5
Belgian, 15 ½ lb. p. 120	10/7 ½	9/10 ½	9/4 ½	10/3 ¾	9/10	10 8 ¼	*10/4 ½	*11/3 ¼	* 11/0 ¾
Danish, 18 lb p. 120	13 3	13 -	11/10 ½	12/4 ½	12/7 ½	12/10 ½	12/6 ½	12/5	12/5 ¾
Northern Irish, 18 lb p. 120 2)	16/3	15/7 ½	15/7 ½	16/6	16/0 ½	17 5 ¼	14/6 ¾	15/1 ½	* 12/9 ½
Dutch, all brown, 18 lb. p. 120	14/-	13/6	13 1 ½	13/9	13/7 ¼	14 2 ¼	13/2 ½	13/2 ¼	13/5
Polish, 51/52 grams each	6/3	6/3	6 4 ½	6/7 ½	6/6 ½	7 5 ½	7/1	* 7/1 ¼	6/10 ¾
Chinese, violet	8 9	8/7 ½	8 7 ½	8/9	8 8 ¼	9 0 ¾	8/9 ¼	* 8/10 ½	* 8/3 ¾
Australian, 16 lb p. 120	n. q.	n q	n q	n q	n q.	n q	*11/3 ½	*11/2 ½	* 11/5 ¾
Maritime freights (Rates for entire cargoes)								1935 36	1934-35
Shipments of Wheat and Maize.									
Danube to Antwerp/Hamburg (shill per long ton)	18 -	18/-	17 -	16 -	16 -	* 14/-	14 3	* 14/7	* 13/11
Black Sea to Antwerp/Hamb. (shill per long ton)	13/-	13 -	13 -	13 -	12/6	9/9	9,9	* 10/-	* 9/11
St. John to Liverpool 3) (shill per 480 lb)	n. q.	n q	n. q.	n. q.	n q	n. q	n. q.	* 2 0 ¾	* 1/6
Port Churchill to United Kingdom (shill per 480 lb)	n 2 9	n 2 9	n 2 9	n 2 9	n 2 9	n q.	2/9	n q.	* 2/9
Montreal to United Kingdom (shill per 480 lb)	2/1 ½	2/1 ½	2/-	2/9	2/-	1/6	1/8 ¼	* 1 11	* 1/6 ¾
Gulf to United Kingdom 3) (shill per 480 lb)	n. q.	n. q.	n. q.	n q	n q	2 6	2/6	* 2/6	2/6
New York to Liverpool 3) (shill per 480 lb)	n. q.	n q.	n. q.	n q	n q.	1 6	1/6	* 1/6	1/6
Northern Range to U.K /Cont. (shill per 480 lb)	n. q.	n. q	n. q	n. q.	n. q.	1/6	n. q.	1/10	n. q.
North Pacific to United Kingdom (sh per long ton)	22 6	20/6	19/-	19/-	19 -	17 -	20/2	19 3 ¾	* 18 1 ½
La Plata Down River 4) /Bahia Blanca to U. K./Continent (shill per long ton)	n 17 9	n 17 6	n.17/3	n.17-	n 16 11	7) 15 9	15/5	* 16/6 ½	14/11
La Plata Up River 5) /Necochea to U.K./Continent (shill per long ton)	19/-	18/9	18/6	18/3	18/3	7) 17/-	16/9	17 9 ½	16/2
Western Australia to U. K / Continent (shill per long ton)	27 -	27/-	8) 28/-	8) 28 -	8) 28/-	7) 24/6	25/9	* 26 6	24/6
Shipments of Rice.								1935	1934
Saigon to Europe (shill per long ton)	25/-	25/-	25/-	25 -	24 9	23 -	n.25/7 ½	* 23/5	24/2 ¾
Burma to U. K./Continent (shill per long ton)	n. q.	n. q.	n. q.	n q.	n q	n. q	n. q.	* 21/8	* 23/3

---

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review. — n. q. = *not quoted*. — n = *nominal*. — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday

1) Shipments of wheat and maize: Aug.-July. — 2) From 28 Feb. "Extra special" quality. — 3) Rates for parcels by liners. — 4) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — 5) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 6) 6-11 July: 75.50; 29 June 4 July: 74 25 — 7) Minimum rate of freight. — 8) South Australia.

EXCHANGE RATES

Relation of various currencies to their parity with the Swiss franc 1)

National currencies	Actual Exchange Rates				Percentage deviaton from Parity with Swiss Franc premium (+) or discount (—)			
	11 Sept 1936	4 Sept 1936	28 August 1936	21 August 1936	11 Sept 1936	4 Sept 1936	28 August 1936	21 August 1936
Germany free reichsmark	123 400	123 450	123 300	123 400	0 0	0 0	— 0 1	0 0
Argentina paper peso †) 2)	87 465	86 583	86 053	85 841	— 60 2	— 60 6	— 60 9	— 61 0
Belgium belga	51 875	51 775	51 775	51 775	0 0	— 0 2	— 0 2	— 0 2
Canada dollar	3 070	3 067	3 067	3 067	— 40 8	— 40 8	— 40 8	— 40 8
Denmark crown	69 225	69 050	68 875	68 950	— 50 2	— 50 3	— 50 4	— 50 4
Spain peseta	n q	n q	n q	n q	n q	n q	n q	n q
Egypt pound 3) United Kingdom pound sterling	15 525	15 455	15 425	15 430	— 38 4	— 38 7	— 38 8	— 38 8
United States dollar	3 070	3 066	3 066	3 066	+ 0 3	+ 0 2	+ 0 2	+ 0 2
France franc Indo China piaster 4)	20 215	20 197	20 200	20 205	— 0 4	— 0 5	— 0 5	— 0 5
Hungary pengö 5)	60 625	60 125	59 800	58 625	— 33 1	— 33 7	— 34 0	— 34 2
India rupee †)	117 214	116 685	116 459	116 496	— 38 0	- 38 3	— 38 4	— 38 4
Italy lira	24 125	24 150	24 150	24 150	— 11 6	— 11 5	— 11 5	— 11 5
Japan yen †)	90 951	90 540	90 365	90 394	— 64 8	— 65 0	— 65 0	— 65 0
Netherlands florin	208 200	208 350	208 250	208 350	— 0 1	0 0	0 0	0 0
Poland zloty	57 500	57 500	57 500	58 000	— 1 1	— 1 1	— 1 1	- 0 2
Rumania leu 5)	1 825	1 850	1 825	1 825	— 41 1	— 40 3	— 41 1	— 41 1
Sweden crown	80 025	79 750	79 550	79 550	— 42 4	— 42 6	— 42 7	— 42 7
Czechoslovakia crown	12 675	12 650	12 660	12 660	— 0 9	- 1 1	— 1 1	— 1 1

1) The exchange rate represents the value of 100 units of the national currency (one unit for the dollar and the pound sterling) expressed as far as possible in Swiss francs on the Zurich Exchange With regard to the currencies marked thus † a conversion has been made the original exchange rates in London being converted into Swiss francs at the rate of the £ in Zurich — 2) Free exchange — 3) As the relation between the Egyptian pound and the pound sterling remains unchanged the exchange rate of the latter only is given — 4) A the relation between the Indo Chinese piaster and the French franc changes only slightly the exchange rate of the latter only is given — 5) Bank notes

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

In the following pages the index numbers of prices of agricultural products and other price-indices, of interest to the farmer, are given as published in the different countries

Owing to the substantial divergence, which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them

In addition to the original data a summary table is given below

Percentage variations in the index-numbers for August 1936

Countries	Comparison with July 1936		Comparison with August 1935	
	Index numbers of prices of agricultural products	Index numbers of wholesale prices in general	Index numbers of prices of agricultural products	Index numbers of wholesale prices in general
Germany	+ 3 0	+ 0 4	2 0	+ 2 1
England and Wales	2 5		+ 3 3	
Argentina	+ 7 9	—	+ 32 3	—
Canada	10 6	+ 2 4	+ 18 6	6 4
United States Bureau of Agric Economics	+ 7 8	—	+ 17 0	—
United States Bureau of Labor	3 1	+ 1 4	+ 5 7	+ 1 4
Finland				
Hungary	0 0	— 10 1	0 0	— 3 4
New Zealand	- 1 3	—	+ 19 4	—
Netherlands	3 8	+ 0 6	+ 12 2	+ 3 1
Poland				
Yugoslavia				
plant products	— 0 2	+ 0 6	— 10 1	+ 1 9
livestock products	+ 2 5		+ 17 9	

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER [1]

DESCRIPTION	August	July	June	May	April	March	August	August	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	115.2	117.2	116.9	116.4	115.5	114,8	114.5	115.7	113.4	108.7
Livestock	92.0	89.1	88.9	88.7	89.0	88.4	88.6	73.4	84.2	70.9
Livestock products	111.6	108.8	107.3	107.2	107.3	107.4	109.6	104.0	107.1	105.0
Feeding stuffs	106.6	110.2	111.2	110.7	109.8	108.8	103.7	108.7	104.6	102.0
Total agricultural products	106.4	106.1	105.7	105.3	105.0	104.5	104.3	99.6	102.2	95.9
Fertilizers	64.4	62.9	68.4	67.9	69.9	69.9	65.9	67.9	66.8	68.7
Agricultural dead stock	111.5	111.4	111.3	111.4	111.3	111.2	111.1	111.4	111.1	111.1
Finished manufactures (« Konsumgüter »)	127.8	127.4	126.7	126.2	125.9	125.6	124.1	116.7	124.0	117.3
Wholesale products in general	104.6	104.2	104.0	103.8	103.7	103.6	102.4	100.1	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100										
Agricultural products 2)	124	121	121	120	129	122	120	122	123	119
Feeding stuffs	105	93	87	85	86	85	80	101	87	91
Fertilizers	88	89	89	89	89	89	88	89	88	90
Wholesale products in general 3)	. .	102.1	99.3	100.2	100.9	101.6	98.9	98.1	99.5	96.4
Argentina (Banco Central de la República Argentina) 1926 = 100										
Cereals and linseed	92.9	85.1	78.9	78.3	78.5	77.7	64.3	83.9	67.2	68.1
Meat	101.4	95.7	92.8	89.4	85.5	86.5	88.6	80.0	84.0	78.1
Hides and skins	83.4	77.7	78.1	80.7	88.6	93.2	76.3	59.6	90.5	71.6
Wool	106.4	100.1	98.9	97.7	98.2	99.2	78.7	82.2	74.6	84.3
Dairy products	92.9	84.6	86.6	94.2	83.0	73.3	104.6	68.2	88.8	62.3
Forest products	95.6	95.5	97.7	98.0	97.7	95.0	91.8	71.6	92.2	73.1
Total agricultural products	93.9	87.0	82.5	82.1	82.5	82.2	71.0	80.0	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100										
Field products (grain, etc.)	74.1	63.2	60.8	59.9	59.8	59.2	55.5	60.7	57.1	53.8
Livestock and livestock products	71.9	71.6	70.7	73.0	73.8	76.0	72.4	62.9	73.9	67.7
Total Canadian farm products	73.3	66.3	64.5	64.8	65.0	65.5	61.8	61.5	63.4	59.0
Fertilizers	74.3	74.3	74.3	74.3	72.9	24.3	75.8	74.6	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.5	75.0	75.3	75.3	75.3	75.8	75.4	76.5	75.7	77.0
Wholesale products in general	76.2	74.4	72.3	71.8	72.2	72.4	71.6	72.2	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696).
2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. —
3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	August 1936	July 1936	June 1936	May 1936	April 1936	March 1936	August 1935	August 1934	Year	
									1935	1934
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100										
Cereals	129	109	87	88	89	92	96	106	103	93
Cotton and cottonseed	103	105	96	96	96	93	97	107	101	99
Fruits	108	117	115	103	89	94	87	101	91	100
Truck crops (market garden crops)	134	115	99	105	107	77	92	108	127	104
Meat animals	123	119	120	118	125	122	129	68	117	68
Dairy products	125	116	106	106	114	118	98	97	108	95
Chickens and eggs	112	106	103	101	97	99	111	86	117	89
Miscellaneous	152	131	120	97	94	91	102	125	97	108
Total agricultural products	124	115	107	103	105	105	106	96	108	90
Commodities purchased 1)	126	123	120	121	121	121	125	125	125	123
Agricultural wages 1)	—	—	108	—	—	101	2) 99	2) 90	95	88
United States (Bureau of Labor) 1926 = 100.										
Cereals	102.4	88.9	73.0	70.6	73.9	75.6	79.3	86.0	82.4	74.5
Livestock and poultry	84.5	82.0	83.2	82.5	88.3	88.3	91.6	56.2	84.9	51.5
Other farm products	77.8	78.2	75.8	71.4	74.4	69.1	71.4	73.1	73.4	70.5
Total agricultural products	83.8	81.3	78.1	75.2	76.9	76.5	79.3	69.8	78.7	65.3
Agricultural implements	94.2	94.2	94.2	94.2	94.2	94.2	93.6	92.0	93.7	89.6
Fertilizer materials.	66.7	65.2	64.0	64.7	64.6	64.8	66.8	64.8	66.3	67.1
Mixed fertilizers	69.3	68.7	66.0	65.3	64.5	68.3	68.1	73.0	70.6	72.5
Cattle feed	114.2	107.9	80.7	71.2	74.0	67.9	71.3	104.0	88.4	89.4
Non-agricultural commodities	80.9	80.3	79.4	79.2	80.1	80.2	80.6	77.8	80.2	76.9
Wholesale products in general	81.6	80.5	79.2	78.6	79.7	79.6	80.5	76.4	80.0	74.9
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	87	87	89	88	88	87	78	86	80	82
Potatoes	77	93	83	83	85	83	83	42	75	49
Fodder	60	59	65	66	66	65	55	63	62	72
Meat	86	88	82	77	80	83	81	74	75	71
Dairy products	81	81	80	78	78	84	84	75	83	75
Total agricultural products	79	79	78	76	78	81	77	73	76	73
Wholesale products in general	91	91	90	90	90	91	90	90	90	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	71	71	70	72	75	79	79	69	—	—
Wholesale products in general	86	86	85	86	88	91	89	81	—	—
Italy (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	..	...	...	...	...	...	379,6	305.3	...	297.9
Wholesale products in general	..	...	..	...	...	...	329.2	274.8	...	275.8
New Zealand (Census and Statistics Office) Average 1909-13 = 100										
Dairy products	119.8	114.2	106.9	96.9	92.6	93.2	90.8	82.4	91.3	76.7
Meat	155.0	158.4	159.8	157.8	159.2	159.3	148.0	151.6	157.6	151.8
Wool	107.4	111.7	102.2	109.0	108.3	113.7	85.1	104.1	82.2	127.3
Other pastoral products	124.4	123.1	121.6	116.4	120.5	121.4	100.7	85.1	96.7	88.8
All pastoral and dairy products	127.5	126.8	121.9	118.0	116.6	118.1	105.3	105.4	107.2	108.9
Field products	120.4	118.8	127.4	128.8	129.9	133.4	126.3	122.0	126.0	120.0
Total agricultural products	126.6	128.3	122.1	118.4	117.0	118.6	106.0	105.6	108.8	104.7

---

1) 1910-1914 = 100 — 2) July.

DESCRIPTION	August 1936	July 1936	June 1936	May 1936	April 1936	March 1936	August 1935	August 1934	Year	
									1935-36 3)	1934-35 3)
Norway										
(Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	154	148	148	145	145	145	143	134	144	126
Potatoes	101	128	132	147	155	160	168	125	165	132
Pork	112	101	101	93	108	111	107	80	109	83
Other meat	155	155	146	143	144	143	161	149	146	137
Dairy products	135	135	137	137	137	137	99	132	139	132
Eggs	110	98	88	88	101	110	139	84	102	92
Concentrated feeding stuffs	127	127	126	129	126	124	125	103	123	109
Maize	132	128	125	125	124	120	114	100	113	101
Fertilizers	86	87	88	89	88	88	83	88	82	81
Netherlands										
(Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	57	52	47	50	48	47	52	68	50	58
Livestock products	54	54	55	54	53	50	48	51	51	49
Total agricultural products	55	53	53	53	51	49	49	55	51	51
Agricultural wages	68	68	69	68	69	69	69	71	69	71
Wholesale products in general 1)	62.7	62.3	61.6	61.0	61.1	61.5	60.8	—	4) 61.5	4) 63.0
Poland										
(Central Bureau of Statistics) 1928 = 100.									1935	1934
Raw plant products	34.6	34.4	40.0	39.8	39.1	36.0	29.6	39.1	33.9	35.6
Meat animals	40.7	40.5	40.6	41.1	38.5	34.7	45.3	37.3	35.5	36.7
Dairy products and eggs	36.9	37.8	35.8	37.5	38.4	39.3	40.2	36.7	41.2	41.2
Products directly sold by farmers	37.0	37.0	39.4	39.8	38.8	36.2	36.7	38.1	35.8	37.0
Flour and groats	40.3	38.0	39.7	39.2	40.0	36.0	34.7	41.5	36.7	38.8
Meat and lard-fat	47.8	47.5	46.6	48.0	42.2	39.3	47.3	43.1	40.8	43.5
Sugar, alcohol, beer	...	71.6	71.7	71.6	71.8	71.8	79.3	90.0	79.2	88.6
Products of agricultural industries	53.1	52.3	52.6	52.9	51.2	48.9	53.7	57.9	52.0	56.7
Total agricultural products	45.0	44.5	45.9	46.3	44.9	42.4	45.1	47.9	43.8	46.8
Commodities purchased 2)	64.8	64.4	64.0	63.7	64.0	64.4	66.5	...	66.3	70.3
Wholesale products in general 2)	53.9	53.6	53.9	53.7	53.0	52.1	53.6	...	53.0	55.7
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	60.8	60.9	64.5	69.0	76.3	80.5	67.6	56.5	68.2	57.4
Livestock products	62.6	61.1	56.2	57.4	56.5	55.6	53.1	51.9	56.6	55.4
Industrial products	67.6	67.5	67.6	67.9	69.4	69.7	66.4	65.3	66.7	67.4
Wholesale products in general	66.0	65.6	65.4	67.0	69.1	70.0	64.8	61.1	65.9	63.2

---

1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) In consequence of a revision of the index-numbers of the prices of fertilizers, the other Series affected by these prices have also been revised. — 3) Agricultural year: Norway: 1st April-31 March; Netherlands: 1st July-30 June. — 4) Calendar year.

SUPPLEMENTARY INFORMATION ON PRICES

In the table below some quotations are given of Friday 18 September 1936. The qualities and price-units used in various markets will be found in the table "Weekly Prices by Products" pages 610-613.

WHEAT

Winnipeg	105 ⅜
Chicago	n. 117.00
Minneapolis	134 ⅞
New-York	128 ¾
Buenos Aires	11 00
Hamburg· Manitoba Nº 1	11.69
» Barusso	10.64
Antwerp: Home-grown	114 00
» Nº 1 Manitoba	120 00
» Barusso	128 00
London· Home-grown	34/9
Liverpool and London	
French	n c
South Russian	n c
Nº 1 North. Manitoba (Atlantic)	38/10 ½
Nº 1 North. Manitoba (Pacific)	39/3
Nº 3 North. Manitoba (Pacific)	37/7 ½
White Pacific	36/6
Rosafé	1) 34/-
Karachi	39/–
West Australian	39/9
New South Wales	39/1 ½
Milan	1) 123 00

RYE

Winnipeg	68 ⅛
Groningen	7.80

BARLEY

Winnipeg	59 ⅛
Antwerp	91 00
London	45/6
Liverpool and London·	
Danubian	19/9
Russian	n c
Canadian Nº 3 Western	24/7 ½
Californian	39/–
Plata	2) 19/7 ½
Iraquian	3) 19/3
Groningen	5 50

OATS

Winnipeg	44 ¾
Chicago	46 ½
Buenos Aires	5 95
Paris	95 75
London	19/3
Liverpool and London·	
Canadian Nº 2 Western	22/3
Plata	14/10 ½
Milan· Home Grown	93 50
» Foreign	95 00

MAIZE

Chicago	116 ¾
Buenos Aires.	6 00
Antwerp: Plata	86.00
» Cinquantino.	87 00
Liverpool and London·	
Danubian	n c.
Yellow Plata	22/10 ½
Nº 2 African	n. c.
Milan	84 00

RICE (milled)

Milan: Vialone	172.50
» Maratelli	154 00
» Originario	125.00
Rangoon. Nº 2 Burma	247 8
» Small mills	227 8
» Big mills	222-8

RICE (milled) (*Continued*)

London: Nº 3 Belloch.	n. c.
» Italian	n. c.
» American Blue Rose	n. c.
» Nº 2 Rangoon	8/1 ½
» Nº 1 Saigon	9/–
» Siam Super	9/4 ½

LINSEED

Buenos Aires	14.75
Antwerp	173 00
London Plata	11-17-6
» Bombay	13 18 10
Duluth	4) 208

COTTONSEED

Alexandria Upper Egypt	68 6
» Sakellaridis	64 1
London Sakellaridis	n 6-17-6

COTTON

New Orleans	12 38
New York	12 38
Bombay· Broach, f g., futures	221 0
» Broach f g (spot)	n c
» Oomra, fine (spot)	n. c
Alexandria. Sakellaridis, f g f	17 45
» Ashmuni, f g f	12 75
Le Havre	253 50
Liverpool. Middling, fair	n 8 08
» Middling	6 98
» Sao Paulo, g f	6.98
» Broach, g f	n. 5 61
» C P Oomra s'fine	5 77
» Sakellaridis, f g f.	10.24
» Upper Egyptian, f g f	7 60

BUTTER

Copenhagen	218 00
Leeuwarden	58
Antwerp	19 25
London English	137/8
» Danish	124/–
» Estonian	n c
» Lettonian	n c
» Dutch	99/6
» Argentine	96/–
» Siberian	102/6
» Australian	105/6
» New-Zealand	105/6

CHEESE

Milan Parmigiano 1934	845.00
» » 1935	785 00
» Gorgonzola	620 00
London: Cheddar	79/–
» Cheshire.	77/–
» Gorgonzola (danish)	88/8
» Edam 40 %	51/–
» Canadian	69/6
» New-Zealand	67/6

EGGS

Antwerp: Belgian	68.00
Denmark: Danish.	136.00
London: English	19/6
» Belgian	10/10 ½
» Danish	13/1 ½
» Northern Irish.	17/6
» Dutch	14/9
» Polish	6/8 ¼
» Chinese	8/7 ½
» Australian.	n c.

---

1) New crop, shipping Jan.-Feb. — 2) Shipping October; 61–62 kg. per hl. — 3) Shipping October. — 4) September futures.

FIXING OF WHEAT PRICES IN FRANCE

The Central Committee of the Wheat Board set up by the Law of 15 August 1936, has fixed the price of new crop wheat at Fr. 140 per ql. as from 1 September with a monthly increment of Fr. 1.00 up to 31 January 1937, and of Fr. 1.50 for the following months. Wheat sales during August will be paid at a price of Fr. 139. Thus, the prices of good quality marketable wheat of a hectolitre weight of 72 kg. will be established as follows:

Month	Francs per quintal	Month	Francs per quintal
September	140 00	March	147.00
October	141 00	April	148 50
November	142 00	May	150.00
December	143 00	June	151.50
January	144 00	July	153.00
February	145 50		

Premiums are paid on wheat with a greater hectolitre weight, beginning from 73 kg., with a maximum of Fr. 7 per ql. for wheat with a hectolitre weight between 79 and 79.999 kg. Similarly, deductions are made under 71.5 kg., the maximum being Fr. 5.50 per ql. for wheat with a hectolitre weight between 67.999 and 67 kg.

RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH THE PRICES ARE QUOTED IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium (2)	Canada (3)	Denmark Sweden	Egypt	Spain Switzerland	United States (4)	France Indo China (5)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Romania	Czecho-slovakia (6)
Germany	Reichsmark	1.000	0.561	11,898	0.238	0.889	4.819	1.235	0.403	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	9.648
Argentina	Paper peso	1.782	1.000	21.203	0.424	1.584	8.586	2.200	0.718	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	17.191
Belgium	Franc (2)	0.084	0.047	1.000	0.020	0.075	0.040	0.104	0.034	0.511	0.082	0.114	0.055	0.380	0.049	0.050	0.178	3.347	0.811
Canada	Dollar (3)	4.198	2.356	49.948	1.000	3.731	20.230	5.183	1.693	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	40.501
Denmark/Sweden . . .	Crown	1.125	0.631	13.385	0.268	1.000	5.422	1.389	0.454	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	10.854
Egypt	Piastre	0.207	0.116	2.469	0.049	0.184	1.000	0.256	0.083	1.262	0.203	0.283	0.135	0.939	0.099	0.122	0.441	8.264	2.002
Spain/Switzerland . . .	Peseta/Fr.	0.810	0.455	9.638	0.193	0.720	3.903	1.000	0.327	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	7.815
United States.	Dollar (4)	2.479	1.391	29.500	0.591	2.204	11.948	3.061	1.000	15.074	2.427	3.377	1.618	11.221	1.185	1.469	5.265	98.737	23.920
France/Indo-China (5) .	Franc	0.164	0.092	1.957	0.039	0.146	0.793	0.203	0.066	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.587
Great Britain	Shilling	1.021	0.573	12,154	0.243	0.908	4.923	1.261	0.411	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	9.856
Hungary	Pengö	0.734	0.412	8.736	0.175	0.653	3.580	0.905	0.296	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	7.084
India	Rupee	1.532	0.860	18.231	0.365	1.362	7.384	1.892	0.618	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	14.783
Italy.	Lira	0.221	0.124	2.629	0.053	0.196	1.065	0.273	0.090	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	2.131
Japan	Yen	2.092	1.174	24.897	0.498	1.860	10.084	2.583	0.843	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	20.189
Netherlands	Florin	1.687	0.947	20.077	0.402	1.450	8.132	2.083	0.681	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	16.280
Poland	Zloty	0.471	0.264	5.603	0.112	0.419	2.269	0.581	0.190	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	4.543
Romania	Leu	0.025	0.014	0.299	0.006	0.022	0.121	0.031	0.010	0.153	0.025	0.034	0.019	0.114	0.012	0.015	0.053	1.000	0.242
Czechoslovakia	Crown (6)	0.103	0.058	1.233	0.025	0.092	0.499	0.128	0.042	0.630	0.102	0.141	0.067	0.469	0.049	0.062	0.220	4.127	1.000

---

(1) Each quotation shows the par-value of the monies named in the column headed "Unit of currency" calculated in terms of the currency of the countries printed in the heading. — (2) From 31 March 1935 the franc represents only 72 % of its previous gold value — (3) Till 31 January 1934 also parity of the United States. — (4) New parity as from 31 January 1934. — (5) One gold piastre equals 10 francs. — (6) From 17 February 1934 the crown represents only $^{5}/_{6}$ of its previous gold value.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile*

MONTHLY CROP REPORT
AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

WORLD WHEAT SUPPLIES AND REQUIREMENTS

For the fourth year in succession the world's wheat crop is insufficient to cover requirements for consumption; once more the deficit will be met by drawing on the stocks carried over from preceding seasons. The object of the present examination is to make as exact an analysis as possible of the statistical position in the current wheat season, to endeavour to estimate how far the 1936 crop falls below probable requirements for consumption, how much must be drawn from the stocks existing on 1 August 1936 and to what level stocks will be reduced by 31 July 1937.

I. — THE 1936 WHEAT CROP.

The estimate of the world wheat crop made at this time of year still rests on uncertain ground. The official data available to the Institute concerning the crop results in the northern hemisphere are largely provisional and consequently subject to modifications sometimes by no means negligible. In addition, data are not available for all countries; the gaps are not usually very important and are filled by approximations based on information concerning the area cultivated and the probable unit-yield to be expected from the weather during the season. This year, however, amongst the countries for which data are lacking is one of the largest producers in Europe, Italy, and this serious gap has also had to be filled by a conjectural estimate that may differ widely from the actual result. In addition, there are also lacking the data for the producing countries of the southern hemisphere, where the crops have still to pass through the most critical phase of their growth cycle; for these countries, except for Australia, there have also been adopted conjectural figures but these have a much smaller value as approximations than the corresponding estimates for the northern hemisphere since they are based not on probable unit-yields of crops already harvested but on prospects estimated from the condition of standing crops at least two months before harvest. These more or less approximate results are given in the following table. So estimated, the production of wheat in 1936 appears fairly good in Asia and in South America, on the whole mediocre in the European countries and in Oceania and distinctly bad in North America and Africa.

World Wheat Production 1).

(million bushels).

YEARS	Europe 2)	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R.
1923-27 average	1,243	1,210	275	402	108	143	3,381	694
1928	1,409	1,492	399	342	116	168	3,926	807
1929	1,451	1,139	221	384	136	134	3,465	694
1930	1,360	1,319	273	456	115	221	3,744	989
1931	1,435	1,275	264	407	131	197	3,709	753
1932	1,490	1,210	286	393	140	225	3,744	742
1933	1,747	845	345	422	124	186	3,669	1,018
1934	1,551	814	290	433	152	140	3,380	1,117
1935	1,573	911	195	450	136	151	3,416	1,132
Forecast 1936	1,450	873	295	434	114	138	3,304	...

1) Not including China, Iran, Turkey and Iraq. — 2) Not including U.S.S.R.

Despite the unequal value of the various estimates that together constitute at this time of year the estimate of world wheat production this may be considered as providing a sufficient approximation to the actual harvest results. Differences of varying magnitude appear each year between the estimates available in October and the final results but, save in exceptional cases, they are not of a nature such as to involve fundamental modifications in the statistical position of the wheat market as it is pictured at this time of the year. As appears from the following table, the results for the world as a whole have in each of the last three seasons exceeded the October forecasts; the increase, which was a large one in 1933, was smaller in 1934 and almost negligible in 1935.

Forecasts and final data of world wheat production.

(in million bushels).

STATES	1933 crop		1934 crop		1935 crop	
	Forecasts (October 1933)	Final data	Forecasts (October 1934)	Final data	Forecasts (October 1935)	Final data
Europe	1,670	1,747	1,477	1,551	1,540	1,573
North America	808	845	786	814	900	911
South America	268	345	294	290	225	195
Asia	415	422	426	433	445	450
Africa	114	124	136	152	130	136
Oceania	195	186	147	140	140	151
TOTAL	**3,470**	**3,669**	**3,266**	**3,380**	**3,380**	**3,416**

Last year at the same date we asked the question whether the figure of world production in 1935 would prove an under-estimate as serious as those experienced in previous years and the answer was that, while in our opinion an increase of 20 to 40 million bushels seemed probable for European production the figures as a whole, provided there were no surprises in the harvest results of the southern hemisphere, very closely approximated to the actual; the data in the above table show that this opinion was well-founded. As regards the present estimate of world wheat production in 1936 it would appear that the figures known for the northern hemisphere are closely related to the influence of the very unfavourable summer on unit-yields and that the damage to crops has already been largely reflected in a considerable reduction of forecasts. Perhaps in some parts of Europe, North America and Africa the seriousness of crop damage has been somewhat exaggerated so that eventually, as final figures are established, a slight increase will have to be regarded as more probable than a decrease in the totals for the different continents. On the whole we are, however, of the opinion, as in October of last year, that the estimates available at this date are sufficiently close to furnish a serious basis for the examination of wheat supplies and requirements in the current season, always with due allowance, of course, for changes that may be brought about by the weather in the southern hemisphere, a factor that cannot be forecast.

On the basis of the information at present available, wheat production in 1936 in the different continents presents the following picture. In Europe production remains considerably below 1,490 million bushels, a level always exceeded in the last three years; the crop would thus appear to be mediocre in comparison with those of the last few years (8 per cent with respect to 1935 and 4 per cent with respect to the 1930-34 average) but it distinctly exceeds the 1923-27 average (by 207 million bushels or 17 per cent) and remains slightly above the 1928-32 average (by 22 millions or 2 per cent). The poor result obtained in 1936 is due to the decrease in area cultivated to wheat and still more to the low unit-yield. The decline in area is for the most part attributable to unfavourable weather in the autumn of 1935 and spring of 1936 but in some countries also to difficulties in marketing at a remunerative price. The low unit-yield may be ascribed to the distinctly unfavourable weather, the autumn having been abnormally dry, the winter mild and rainy and the summer excessively wet and stormy in Western and Middle Europe. The unit-yield in these countries as a whole in 1936 has in fact been very low — only 19.5 bushels per acre — approaching even the lowest of the last ten years; the average of the five years 1931-35 was 22.5 and that of the five years 1926-30 was 19.8 bushels. The particular importance of the continued improvement of unit-yields of wheat in Europe has often been emphasized here and the phenomenon attributed to progress in cultural methods, which has had a steady influence on the volume of production and in consequence on the decrease of European imports. The poor unit-yield of the 1936 crop may appear to contradict these statements; in fact, however, it has always been recognised here that technical progress cannot neutralize the effect of bad weather and render wheat production independent of sun and rain; there will always be variations in the crop from one year to another and they will always be due to good or bad weather, but these variations will oscillate around an average considerably higher than ten years ago.

Unit Yields of Wheat (1).
(bushels per acre).

YEARS	Europe	North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S.R.
1923-27 Average	18.0	15.4	13.0	11.4	10.8	12.9	15.0	10.9
1928	19.8	17.8	15.5	9.5	10.6	1.2	16.1	11.7
1929	20.7	12.6	11.3	10.7	11.7	8.8	14.3	9.4
1930	18.4	14.9	11.9	12.8	9.7	12.0	14.9	11.9
1931	18.9	15.0	13.5	11.3	11.2	13.1	15.2	8.3
1932	19.8	14.0	13.5	10.6	11.3	14.0	15.0	8.8
1933	22.5	11.0	15 6	11.3	10.4	12.3	15.2	12.3
1934	20.0	11.9	13.7	10.6	12.6	11.0	14.6	12.8
1935	20.0	11.9	12.3	11 4	10.9	12.5	14.6	12.2
Forecast 1936	19.0	11.3	14.6	11.2	9.4	11.0	14.0	...

1) Calculated on the area harvested — 2) Not including China, Iran, Turkey and Iraq.

The 1936 crop in North America is more or less of the same size as those of the three preceding years and is thus for the fourth year in succession extremely bad; the decrease amounts to 340 million bushels or 28 per cent with respect to the 1923-27 average and to 410 million or 32 per cent with respect to the 1928-32 average. Heavy losses were caused to spring crops by drought both in the United States and Canada and winter wheat in the United States has been only a mediocre crop.

In Asia (not including China, Iran and Turkey) total production is slightly smaller than last year but remains practically the same as the five-year average. In China and Turkey the crop appears to be abundant.

Production in Africa is bad in consequence of the severe damage occasioned by drought in Morocco, Tunisia and recently in the Union of South Africa; the Algerian crop is not more than passable and only Egypt records a production somewhat above the average.

As for the countries of the southern hemisphere a considerable increase in the South American crop is expected in consequence of the favourable forecasts in Argentina on an area much larger than last year. In Oceania despite the extension of area under wheat, a production slightly under that of last year but appreciably below the average is expected.

In brief, on the basis of the provisional data and the forecasts at present available, world production in 1936 appears to be very small, even below the 1935 level, which was one of the lowest experienced since the World War. If the South American crop, which promises to be larger than last year, is excluded, production remains to a greater or less degree smaller than that of 1935.

For the exporting countries as a whole production is mediocre but appreciably greater than in 1935, thanks to the good results obtained in the European exporting countries and to those expected from Argentina, the total of which will partly compensate for the poor outturns in the other exporting countries. The total production of the importing countries remains on the other hand distinctly smaller than in the four preceding years and presents only a small margin over the average of the crops prior to 1932.

II. — EXPORTABLE SUPPLIES OF WHEAT.

The exportable surplus of the various groups of exporters is represented by the difference between total supplies existing in each country and internal requirements for consumption and for the necessary minimum end-of-season carryover. The totals exportable from the various countries are arrived at as follows.

North America. — For the fourth time in succession the United States have a crop smaller than requirements for internal consumption. Production of wheat in 1936 is estimated at 627 million bushels, while annual consumption inside the country oscillates around 660 millions. The new crop, added to the stocks existing at the beginning of the season (172 million bushels), gives a total supply of 799 million bushels, which would suffice to cover normal internal requirements (660 million for food, feed and seed and 105 million for minimum carryover), leaving in addition a surplus of about 34 million available for export. It must, however, be noted that 1) the production of other cereals and especially of maize has this year been exceptionally poor; 2) that the greater part of old crop stocks consists of low-quality wheats unsuitable for milling; 3) that there is in prospect a great extension of wheat sowings. If account is taken of the fact that all these elements tend to increase the quantities of wheat for feeding livestock (including poultry) as well as those used for sowings, there are grounds for believing that the surplus of 34 million bushels above indicated as exportable will be practically entirely absorbed by the increase in the disappearance for food, feed and loss. There would thus be an almost exact correspondence between supplies and requirements of wheat in the United States but it must be borne in mind that the production of several types of hard spring wheat was so reduced by drought in 1936 that it will be necessary this year, as last year for the same season, to import similar wheats of Canadian origin to meet the deficit. These imports are estimated by the Department of Agriculture at Washington at about 25 million bushels. It is apparent that the quantities thus imported and delivered to the mills for internal consumption set free corresponding quantities of domestic wheat to be exported or accumulated as stocks additional to the minimum end-of-season carryover. To the United States there may consequently be attributed an exportable surplus of 25 million bushels, taking into account the surplus due to the import of certain kinds of wheat; this surplus in any case has its counterpart in a need to import an equal amount, which figures amongst those attributed to the extra-European importing countries.

In Canada, where drought has caused serious damage, the provisional estimate of production gives a total of hardly 233 million bushels; in some quarters this estimate is considered somewhat pessimistic. Stocks of Canadian wheat existing on 1 August amounted to nearly 129 millions, including those kept in store in the United States; total supplies are thus 362 million bushels. Estimating internal consumption at 105 millions and assuming a minimum carryover of 27 millions, exportable supplies of Canadian wheat for the current season attain 230 million bushels against 347 million last season and 375 million on the average of the five preceding seasons.

Argentina and Australia. — On the basis of the prospects indicated by crop condition some months prior to the harvest, the exportable surpluses of the two great surplus-producing countries of the southern hemisphere can be established only in an approximately indicative way, it being still possible for the crops to give results very different from those now reported.

In Argentina, despite the rather unfavourable opening of the season, excessive rains having hindered cultivation and in some cases sowings, the area cultivated exceeds by about 20 per cent that of last year. Crops suffered somewhat in September from drought but the general rains in mid-October were very favourable and revived hopes of a good harvest. If weather remains normal the harvest may give a unit-yield slightly in excess of the average and a production of about 240 million bushels against 140 million last year and 244 million on the average of the five preceding years. If this forecast proves well-founded the new Argentine crop will give an exportable surplus of 150 million bushels, assuming an internal disappearance of 90 millions. Adding to the exportable surplus of new wheat the 28 million bushels of exportable old crop stocks existing on 1 August the exportable supplies of Argentine wheat in 1936-37 will reach a total of 178 millions. They would thus be larger than those of the past season, which were scarcely 97 millions, but still appreciably below the average of the five preceding seasons, which amounted to 200 million bushels.

For Australia the first official forecast of production has just been received, placing it at nearly 130 million bushels, a little below that of last year, despite the increase of 5 per cent in area cultivated, result due to the rather unfavourable weather, characterized by insufficiency of rain. If this forecast is confirmed the new crop will leave, after deduction of 50 million bushels for internal consumption, an exportable surplus of about 80 million. Adding to this surplus the stocks of old wheat on 1 August, estimated at 32 million bushels, the total exportable supplies of Australian wheat in 1936-37 will attain 112 million, a total much below that of last year (133 millions) and very much smaller than the average of the five preceding seasons (180 millions).

India. — This year's wheat production is slightly smaller, though of the same order of magnitude as that of last year and the average, which were almost entirely absorbed by internal consumption.

India has for several years in fact, been practically absent from the international wheat market, prices on the external market not having been sufficiently attractive to lead to the movement of any considerable quantities. The recent rise of the international price of wheat and the abundance of food from the last crops may, however, permit a revival of the Indian export, especially if the prospects for the coming crops are favourable. For the moment the placing of any substantial quantities abroad does not seem likely and for the present season the total exportable from India may be expected to be not more than 5 million bushels.

U. S. S. R. — No official estimate of the Soviet crop for 1936 has so far been published and the information from various sources as regards production is rather contradictory. This divergence of opinion would seem to reflect the irregularity of the crops from region to region. Winter wheat seems to have benefited from a generally favourable season; particularly in the southwestern areas, where winter sowings have more importance, production should have been very satisfactory; on the other hand, spring wheat, which represents about two-thirds of the total wheat grown in the U. S. S. R., suffered at the beginning of the summer from severe drought, accompanied by excessive heat, especially in the southeast, and it should therefore have given a unit-yield very irregular from region to region but on the whole rather below the average. Total production of wheat would thus appear to be distinctly below that in the last two years. On the other hand the volume of exports from the Soviet Union is not always in relation to internal resources, being more often subordinated to the exigencies of commercial policy and the internal economic policy of the Government. However, the need of foreign valuta that formerly tended to force up wheat exports has become less pressing now that equilibrium has been attained in the trade balance and the production of gold has been increased, while the abolition of bread-rationing and the increase of population may be expected to increase requirements for consumption. Given this situation it would seem likely this year that the Soviet Union will not figure on the international wheat market with any large quantities.

European exporting countries. — The four Danubian countries together with Poland and Lithuania have this year had an excellent crop, attaining, according to provisional estimates, 460 million bushels and approaching closely the record of recent years (462 million in 1931). Given the caution with which these provisional estimates are made, it is even probable that the final figures will bring a slight increase in the total as at present estimated. Of these six countries Lithuania alone records a poor crop smaller than that of last year and the average, in consequence of drought damage; all the other countries, especially Romania and Yugoslavia, report very large wheat crops. This group of countries has obtained a good crop of rye, a cereal largely consumed in Poland, Hungary and Lithuania (where, however, the 1936 production was small). The maize crop has been a large one in Bulgaria and Yugoslavia and above the average in Romania, countries where maize is utilized on a large scale for human consumption. Stocks of old-crop wheat in these countries at the beginning of the new season appear practically normal. Taking into account these factors, the probable export of this group may be estimated at 90 million bushels against 34 million actually exported in 1935-36 and 42 million in the five preceding years.

North Africa and other countries. — The three exporting countries of North Africa have this year had a very small crop on the whole, especially in Morocco and Tunisia, where drought and high temperatures have reduced the crop to half the average. Only Algeria, with its just mediocre production, may have an export surplus of any size. The barley crop has given the same results as that of wheat save in Morocco, where it is satisfactory. The abundant stocks of wheat possessed by these three countries last year were diminished during the past season and were practically at their normal level on 1 August 1936. Exports of North African wheats may therefore be expected to be insignificant in 1936-37 but in view of the rise in international prices and especially of the demand for hard wheats and the greater ease of marketing in France this year, the export surplus of North Africa may yet attain 15 million bushels, including in that figure the small quantities that may be exported by the other surplus-producing countries of less importance, such as Turkey, Iran, Iraq, Chile and Uruguay.

From these considerations as a whole it follows that the quantities available to meet the demand of importing countries in 1936-37 amount to hardly 676 million bushels, which means a further decrease of 70 million in the already heavily reduced total of last season

Exportable supplies of wheat.

(million bushels)

SEASONS	Canada	United States	Argentina	Australia	U S S R 1)	India 1)	Danub countries 1) 2)	North Africa 1) 3)	Afloat	Totals
1926-27	320	220	195	130	49	11	44	2	39	1,010
1927-28	388	231	246	95	3	8	31	15	46	1,063
1928-29	496	317	331	136	0	0	34	17	45	1,376
1929-30	293	359	186	99	10	2	55	20	37	1,061
1930-31	382	342	173	200	113	0	51	24	39	1,324
1931-32	319	430	173	192	65	3	84	27	38	1,331
1932-33	452	348	182	191	17	0	12	21	30	1,253
1933-34	367	233	237	158	35	1	36	24	32	1,123
1934-35	352	68	239	153	2	1	26	35	35	911
1935-36	347	64	97	133	29	2	33	25	17	747
Forecast 1936-37	230	4) 25	178	112	0	5	90	15	21	676

1) Exports — 2) Including Poland and Lithuania — 3) Including the other minor exporting countries — 4) See text page 697

Of the four large exporters only Argentina shows an increase in the quantities available for export but one that cannot compensate for the decreases recorded by the three other countries so that, on the whole, the group shows a decline of 96 million bushels on last year's total The total supplies available in Argentina and Australia, though appreciably exceeding those of last season (290 million against 230 million) nevertheless remain much below those of any of the preceding years. The smaller exporters have on the whole larger supplies than in 1935-36 (110 millions against 89 millions), thanks to the growth in the surplus of the Danubian countries, which largely compensates for the contraction expected in Soviet and North African exports.

III. — REQUIREMENTS OF IMPORTING COUNTRIES.

European importing countries. — In the absence of official estimates for some countries, the 1936 crop in this group can only be very roughly estimated at about 990 million bushels. This is a very mediocre production, involving a decrease of about 200 millions or 16 per cent. on the 1935 total and one of 130 millions or 11 per cent. on the five-year average. The decrease in production with respect to last year is due in great part to the mediocre or bad crops in Czechoslovakia, France, Greece, Italy, Latvia, Portugal and Spain, countries that together show a decline of about 175 million bushels or 21 per cent. on the 1935 total, while in the other countries the results remain practically the same or slightly less than those of 1935. Stocks in these countries as a whole, though smaller than last year, remain above the normal.

In view of this situation the import requirements of these countries during the present season must be determined. It may be said at once that the decrease in production will not involve a corresponding increase in the import demand on the part of the deficit countries. This would certainly be the case if international trade were free and goods moved according to supply and demand but at the present time requirements and available supplies do not balance save to the extent permitted by political, military, economic and especially monetary exigencies, to which they remain subordinated. Account must therefore be taken in analysing the probable requirements of the European importing countries not only of the supplies of wheat available to them but of the entire situation as thus defined. These countries may be placed in three groups.

The first group comprises those possessing supplies sufficient (or superabundant) with respect to internal requirements (Czechoslovakia, Estonia, Latvia, Portugal, Spain and Sweden). Despite the poor crop of 1936 these countries still retain sufficient stocks to cover their requirements practically completely; Czechoslovakia has even a surplus and if prices do not involve too heavy a sacrifice they may export about 5 million bushels.

The second group, in which production largely covers internal requirements, comprises Austria, France, Germany, Greece and Italy. These countries, which last season imported 40 to 45 million bushels have all had crops smaller than in 1935, some even very much smaller. France stillhas large stocks but a large proportion is of low quality. Germany has also large stocks but in other countries the reserves appear to be practically normal. The rye and potato crops of these countries are satisfactory while that of maize in Italy is excellent. The probable imports of this group in 1936-37 may be estimated at 95 million bushels.

The third group consists of countries whose supplies are much less than their internal requirements; the United Kingdom, the Irish Free State, Belgium-Luxembourg, the Netherlands, Denmark, Finland and Norway. Wheat production in these countries, which in the last few years had shown a remarkable and continued increase, was checked in 1936. From an average of 85 millions in 1928-32 it had risen to 115 millions in 1933, to 130 millions in 1934 and in 1935 but fell to 115 millions last year owing especially to the reduction of the crop in the United Kingdom and the Irish Free State. Last season the majority of these countries considerably reduced their carryovers and the imports of the last months of the season show that they have not undertaken the reconstruction of their reserves. The imports of wheat into these countries in 1935-36 fell to 316 million bushels, a decline of 12 millions on the previous year, due to the lessened demand for wheats of low quality, which could no longer compete in price with other fodder cereals. This year, in view of the very marked rise in price of these cereals, the relation between the price of fodder wheats and that of other competing cereals may again act as a stimulant to demand. The probable imports of these countries as a whole may be estimated at 330 million bushels, of which 230 million would be absorbed by the United Kingdom and the Irish Free State, 40 million by Belgium, 40 million by Switzerland and the Netherlands and 20 million by Denmark, Finland and Norway.

Summarizing these estimates, the import demand in 1936-37 is estimated for all European countries at about 420 million bushels, a total exceeding by nearly 17 per cent. the actual imports of the two preceding seasons and by 7 per cent. those of 1933-34 but remaining 7 per cent. below those of 1932-33 and from 20 to 40 per cent. below those of previous years. The provisional figures of production, probable imports and apparent consumption of Europe for the present season, compared with those of the previous years are indicated below.

Production and apparent consumption of wheat in Europe.
(million bushels)

YEARS	Importing Countries			Exporting Countries (1)			Total Europe		
	Production	Net Imports	Apparent consumption	Production	Net exports	Apparent consumption	Production	Net imports	Apparent consumption
1925-26.	1,037	531	1,568	366	49	317	1,403	482	1,885
1926-27.	865	661	1,526	350	44	306	1,215	617	1,832
1927-28.	935	657	1,592	339	31	308	1,274	626	1,900
1928-29.	976	657	1,633	433	34	399	1,409	623	2,032
1929-30.	1,073	515	1,588	378	55	323	1,451	460	1,911
1930-31.	915	618	1,533	445	51	394	1,360	567	1,927
1931-32.	973	613	1,586	462	84	378	1,435	529	1,964
1932-33.	1,211	446	1,657	279	12	267	1 490	434	1,924
1933-34.	1,292	393	1,685	455	36	419	1,747	357	2,104
1934-35.	1,215	357	1,572	336	26	310	1,551	331	1,882
1935-36	1,188	2) 360	2) 1,550	385	34	351	1,573	2) 330	2) 1,900
1936-37 (Forecast)	990	420	1,410	460	90	370	1,450	330	1,780

1) Bulgaria, Hungary, Romania, Yugoslavia, Poland and Lituania. — 2) Rounded estimate.

Extra-European importing countries. — The majority of extra-European countries, including Brazil, which is one of the principal buyers of wheat in this group, have a wheat import that remains almost constant. The fluctuations from year to year in the total imported by this group generally reflect the demand in China, Japan, Manchukuo, Egypt and the Union of South Africa, countries that regulate their imports according to the volume of their own crops. Fluctuations are also due to imports by surplus-producing countries that find it necessary exceptionally to have recourse to foreign sources when their own crops are poor. The total import of extra-European countries, which previously oscillated around 200 million bushels, has in the last few years done so around 150 millions; during the past season even this level was attained only through the abnormal demand from the United States, which had a net import of nearly

35 million bushels. In the current season this American demand is being repeated, as already observed, but probably only up to 25 millions.

Amongst the countries of variable import those presenting the most considerable differences from year to year are China and Manchukuo. The former, despite a very mediocre crop in 1935, imported scarcely 8 million bushels during 1935-36; the rise in wheat prices and the difficulties regarding the balance of international payments formed a serious hindrance to importation of the quantities necessary to meet the deficit in internal production. Production this year is much larger than last year and China will be able to do without any import in 1936-37, and even to export a certain quantity to neighbouring countries. In Manchukuo, where the crop has been practically the same as last year, demand will probably remain stationary at last season's level (13 million bushels. In Japan, where wheat-growing is gaining ground every year, the weather was rather adverse and the crop is a little smaller than that of 1935, though still exceeding the preceding five-year mean by 25 per cent. Imports, which had a manifest tendency to decrease in recent years, showed a sudden upward movement in 1935-36, attaining a total of 5 millions. There are grounds for expecting an import of the same magnitude in the current season. In Egypt and the Union of South Africa, where internal resources are adequate to meet requirements there are grounds for expecting an almost negligible import.

In brief, the extra-European demand for wheat does not seem likely to increase during the present season but on the other hand, taking into account the repercussions due to the rise in international prices of wheat as well as the probable reduction of imports into China and the United States, there are grounds for expecting a further decrease in the total for this group. In comparison with the 140 million bushels imported last year, the requirements for the present season seem only 125 millions.

World requirements. — In conclusion, the quantities necessary to cover probable import requirements during 1936-37 would, according to the information and estimates at present available, be 420 million bushels for Europe and 125 million for extra-European countries, making a total of 545 millions. The world import demand for 1936-37 would thus show a slight increase with respect to that of last year (500 millions) and to that of 1934-35 (533 millions); it would be practically the same as in 1933-34 but 15-40 per cent smaller than in previous years.

IV. — SUPPLIES AND REQUIREMENTS OF WHEAT.

According to all the information available, the world statistical position of wheat during 1936-37 is as follows. World production of wheat, excluding that of the U. S. S. R., China and Turkey, is smaller, though only by a little, than the already very poor production of last year; it is thus the lowest experienced since 1922. The production of the U. S. S. R. is reported to be mediocre but no official estimate of its volume is available. The crops of China and Turkey are on the other hand satisfactory.

In the group of exporting countries the production of 1936 slightly exceeds that of 1935, thanks to the good results obtained in the Danubian countries and expected in Argentina, but it remains one of the smallest recorded since the World War. The total production of the importing countries remains on the other hand distinctly smaller than that in 1935 as well as those in 1934, 1933 and 1932 and presents only a small margin over the average of the crops prior to 1932.

Taking account of the old-crop stocks existing in the exporting countries at the beginning of the current season the available world exportable supplies in 1936-37 appear 70 million bushels or 10 per cent smaller than those of last year and are the lowest recorded for many years, they are estimated at 676 million bushels, of which 250 million are exportable old-crop stocks and only 426 million surplus from the new crop of 1936.

The probable requirements of the importing countries are on the other hand regarded as larger than in 1935-36; for the European demand a total of 420 million bushels is forecast, exceeding that of last season by 60 million; for the demand of extra-European countries a total of 125 millions is expected, 15 millions less than in 1935-36. On the whole, world import requirements are estimated at 545 million bushels against 500 million in 1935-36.

Comparing the requirements of the importing countries for the current season, 545 million bushels, with the exportable supplies in the surplus-producing countries, it would appear that the export surplus from the 1936 crop (426 millions) is insufficient to cover the probable demand of the importing countries. It follows that it will be necessary to take from old-crop stocks about 125 million bushels.

World production, trade and stocks of wheat.

(million bushels)

SEASON	World Production				World exportable supplies			World imports	World exportable end-of-season stocks
	Total 1)	Exporting countries	Importing countries	U. S. S. R	Total	Aggregate excluding U. S. S. R.	U. S. S. R		
1926 27	3,396	2,397	999	914	1,010	961	49	812	191
1927-28	3,611	2,534	1,077	797	1,063	1,060	3	817	252
1928-29	3,926	2,849	1,077	807	1,376	1,376	0	888	444
1929-30	3,465	2,242	1,223	694	1,061	1,051	10	671	434
1930-31	3,744	2,682	1,062	989	1,324	1,211	113	826	499
1931-32	3,709	2,583	1,126	753	1,331	1,266	65	809	523
1932 33	3,744	2,379	1,365	742	1,253	1,236	17	629	625
1933-34	3,669	2,221	1,448	1,018	1,123	1,088	35	546	579
1934-35	3,380	2,209	1,371	1,117	911	909	2	533	376
1935-36	3,416	2,048	1,368	1,132	747	718	29	500	250
Forecast 1936-37	3,304	2,136	1,168	...	676	676	0	545	125

1) Excluding U S S R, China, Turkey, Iran and Iraq

From these data it may be concluded that the exportable stocks, which were 250 million bushels at the beginning of the present season and which have continuously diminished since 1 August 1933, a date at which they had attained the record level of 625 million bushels , will undergo in 1936-37 a further and considerable reduction of 125 millions, so that on 1 August 1937 they will be scarcely 125 million bushels. It can, then, be considered that the heavy load of unsold stocks that has for several years so much depressed the international wheat market, has been entirely reabsorbed. The probable level of these stocks on 1 August 1937 appears even below the normal level prior to the great wheat crisis. It is necessary to observe, however, that the reduction in the mass of stocks has not been brought about by the development of demand but has been the result of an uninterrupted succession of serious adversities to the crops (disastrous drought in North America in 1933, 1934 and 1936, spread of black rust in 1935). If in one only of these four years the North American crop had been normal, the probable stocks on 1 August 1937 would not be much below the record level of 1933.

G. CAPONE.

APPENDIX

In the following notes are given the detailed data on which the estimates contained in the present study are based.

I. — EXPORTABLE STOCKS REMAINING FROM PREVIOUS PRODUCTION.

The exportable stocks residual from the previous production in existence on 1 August compared with those for the preceding five seasons have been calculated, for the four large exporting countries only, in the manner indicated below. The stocks in existence in the other exporting countries are excluded because there is an absence of data for exactly estimating them.

UNITED STATES. — The official statistics record the stocks of home grown wheat in the United States on 1 July. In addition to these stocks there must also be taken into account those of U. S. A. grain admitted free into Canada and lying there on 1 July. These were as follows in million bushels.

Stocks	1928	1929	1930	1931	1932	1933	1934	1935	1936
On farms	20	45	60	38	93	83	63	44	44
In interior mills and elevators	19	42	60	30	42	64	48	32	24
Commercial wheat in store	42	96	109	204	168	124	81	22	21
In merchant mills and elevators	32	48	47	22	65	97	76	46	42
In transit to merchant mills	11	16	15	13	10	16	14	7	14
Stored for others by merchant mills	...	...	12	19	7	10	7	4	0
Flour in terms of wheat	18	19	18	14	16	15	20	18	21
TOTAL . . .	(1) 150	(1) 270	321	340	401	409	309	(2) 174	172
U. S. A. wheat in bond in Canada	3	3	5	15	16	4	0	0	0
TOTAL STOCKS . . .	153	273	326	355	417	413	309	174	172
Less minimum carry-over .	105	105	105	105	105	105	105	105	105
EXPORTABLE STOCKS . .	48	168	221	250	312	308	204	69	67

(1) Raised to represent all items and rounded. — (2) Exclusive of Canadian wheat in bond but including 1.5 milion bushels of wheat of foreign origin.

CANADA. — Official statistics record the subjoined estimates of residual stocks of wheat and flour in Canada on 1 August. In addition to these stocks there must also be taken into account those of Canadian grain admitted free into the United States and lying there on 1 August. They amounted to the following quantities in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935	1936
In Canada	78	104	111	134	132	212	194	203	110
In U. S. A.	14	24	17	6	5	7	10	11	19
TOTAL STOCKS . . .	92	128	128	140	137	219	204	214	129
Less minimum carry-over	27	27	27	27	27	27	27	27	27
EXPORTABLE STOCKS . .	65	101	101	113	110	192	177	187	102

ARGENTINA. — Taking into account exports and stocks on 1 January the exportable stocks on 1 August of each year were as follows in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935	1936
Exportable stocks	68	109	35	49	33	50	90	57	28

AUSTRALIA. — Taking into account exports and stocks on 1 December exportable stocks on 1 August are indicated below in million bushels.

	1928	1929	1930	1931	1932	1933	1934	1935	1936
Exportable stocks . . .	26	29	38	49	38	43	73	46	32

The aggregate figures of the exportable stocks at the end of the season for the four large exporting countries as well as those of the floating supplies are as follows

Exportable wheat stocks at end of season.

(million bushels).

YEARS	United States 1)	Canada 2)	Argentina	Australia	Quantity afloat	Totals
1927	46	26	49	24	46	191
1928	48	65	68	26	45	252
1929	168	101	109	29	37	444
1930	221	101	35	38	39	434
1931	250	113	49	49	38	499
1932	312	110	33	38	30	523
1933	308	192	50	43	32	625
1934	204	177	90	73	35	579
1935	69	187	57	46	17	376
1936 . . .	67	102	28	32	21	250

1) Including domestic wheat in store in Canada. — 2) Including domestic wheat in store in the U. S. A.

II. — CONSUMPTION OF THE EXPORTING COUNTRIES.

In the following tables are given for each country the data on which the figures of home consumption in the four large exporting countries have been based.

NORTH AMERICA. — On the basis of the official data of production, commerce and stocks, wheat consumption in Canada and the United States in recent seasons may be calculated as follows in million bushels.

Canada	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
Production	567	305	421	321	443	282	277	277
+ Interior Stocks on 1 August	78	104	111	134	132	212	194	203
= Available supplies on 1 August	645	409	532	455	575	494	471	480
— August-July net exports	404	185	258	206	263	193	164	254
— Interior Stocks on 31 July	104	111	134	132	212	194	203	110
= Consumption	137	113	140	117	100	107	104	116

1) Officially reported as underestimated by about 6 million bushels — 2) Taking account of the yield underestimation.

United States	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
Production	914	823	886	937	757	552	526	623
+ Interior Stocks on 1 July	150	270	321	340	401	409	309	174
= Available supplies on 1 July	1,064	1,093	1,207	1,277	1,158	961	835	797
— July-June net exports .	145	143	115	126	35	28	(1) 1	(1) 32
— Interior stocks on 30 June	270	321	340	401	409	309	174	172
= Consumption	649	629	752	750	714	624	662	657

(1) Net imports.

ARGENTINA. — On the basis of official data, the consumption in the last five years is estimated as follows:

	1928	1929	1930	1931	1932	1933	1934	1935
Million bushels	85	86	86	86	96	90	90	90

Australia. — On the basis of official data for production and trade the consumption in the last five years is estimated as follows.

	1928	1929	1930	1931	1932	1933	1934	1935
Million bushels	47	50	57	52	47	55	61	54

III. — Exports.

The quantities of wheat (with flour reduced to the corresponding equivalents in grain) exported during the last seasons (1 August-31 July) from all the principal exporting countries are given in the following table. The data refer to net exports, that is, exports less imports.

World wheat exports.

Country	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
Canada	395	191	269	208	259	190	164	245
United States.	148	140	93	120	42	32	(1) 4	(1) 35
Argentina	222	151	124	140	132	147	181	69
Australia	107	61	151	154	148	84	106	100
India	(1) 24	2	(1) 4	3	(1) 1	1	1	2
Bulgaria	0	(1) 1	6	11	3	4	0	1
Hungary	25	29	18	18	7	29	13	17
Poland and Lithuania . .	(1) 3	0	5	3	1	2	5	9
Romania	0	3	16	37	0	0	4	6
Yugoslavia	9	23	6	15	1	1	4	1
Turkey, Iran and Iraq. .	(1) 6	0	4	4	1	3	6	2
Algeria	3	5	10	6	9	12	13	10
Tunisia	5	6	6	9	5	0	5	4
Morocco	4	4	2	8	6	8	8	5
Chile and Uruguay . . .	5	5	2	0	(1) 3	1	3	4
Totals . . .	923	620	712	736	614	514	513	475
U. S. S. R.	(1) 5	10	113	65	17	35	2	29
World Exports . . .	923	630	825	801	631	549	515	504

(1) Net imports, not included in the totals.

Taking account, however, of the fact that for several years part of the exports from Canada and the United States has not actually been shipped overseas but has passed from one to the other of these countries to remain in store at its destination, there has been deducted from the total exports above indicated, the amounts of which are increased from the beginning to the end of each season, the stores of Canadian wheat in the United States and those of United States wheat in Canada. On the other hand the inverse operation has been carried out when the amounts stored have decreased.

IV. — IMPORTS AND APPARENT CONSUMPTION OF EUROPE.

The data of production, net imports and exports and apparent consumption of the various European countries, grouped as importing and exporting countries respectively, are given in the following table. The figures of wheat include flour reduced to its equivalent in grain.

Production and apparent consumption of Europe.
(Million bushels).

COUNTRIES	Production in 1933	Trade 1933-34	Apparent consumption 1933-34	Production in 1934	Trade 1934-35	Apparent consumption 1934-35	Production in 1935	Trade 1935-36	Apparent consumption 1935-36
A. — *Importing countries :*		*Imports*			*Imports*			*Imports*	
Germany	206	(1) 5	201	167	10	177	172	0	172
Austria	15	10	25	13	10	23	15	7	22
Belgium and Luxemburg	16	43	59	17	40	57	16	39	55
Denmark	11	13	24	13	19	32	15	9	24
Spain	138	0	138	187	0	187	158	0	158
Estonia	2	0	2	3	0	3	2	0	2
Finland	2	4	6	3	4	7	4	4	8
France	362	17	379	339	1) 18	321	285	8	293
Gr. Brit. and N. Ireland	62	218	280	70	200	270	65	205	270
Greece.	28	11	39	26	15	41	27	15	42
Irish Free State	2	20	22	4	17	21	7	15	22
Italy	299	9	308	233	12	245	283	. . .	. . .
Latvia	7	0	7	8	1) 1	7	4	1	3
Norway	1	8	9	1	9	10	2	8	10
Netherlands	15	23	38	18	19	37	17	22	39
Portugal.	15	1	16	25	1	26	22	4	18
Sweden	29	1	30	28	1) 2	26	24	1	23
Switzerland	6	18	24	7	19	26	6	17	23
Czechoslovakia	73	0	73	50	1	51	62	2	64
Other countries	3	2	5	3	2	5	2	2	4
Totals . . .	*1.292*	*393*	*1.685*	*1.215*	*358*	*1.572*	*1.188*	2) *360*	2) *1.550*
B. — *Exporting countries :*		*Exports*			*Exports*			*Exports*	
Bulgaria	55	4	51	40	0	40	48	1) 1	47
Hungary	96	29	67	65	13	52	84	1) 17	67
Romania	119	0	119	77	4	73	96	1) 6	90
Yugoslavia	97	1	96	68	4	64	73	1) 1	72
Poland	80	2	78	76	4	72	74	1) 7	67
Lithuania	8	0	8	10	1	9	10	1) 2	8
Totals . . .	*455*	*36*	*419*	*336*	*26*	*310*	*385*	1) *34*	*351*
		Imports			*Imports*			*Imports*	
GENERAL TOTAL . . .	1.747	357	2.104	1.551	332	1.882	1.573	2) 330	2) 1.900

(1) Exports. — 2) Rounded estimate.

V. — EXTRA-EUROPEAN IMPORTS.

The imports of extra-European countries are calculated in a somewhat approximate fashion by taking the difference between aggregate exports and imports of European countries and also the quantities afloat at the beginning and end of each season. It should be observed that the calculations do not make any allowance for loss in weight during transit or from handling at shipment and at discharge, for the consequences of sea accidents or for quantities consumed by crews and passengers. Thus the actual shipments to non-European countries are certainly below the quantities indicated by the following calculations. It may, however, be assumed that the quantities which fail to reach their destination do not vary much from year to year, so that the procedure adopted may be adjudged generally as sufficiently exact.

The data forming the basis of this calculation are given below in million bushels:

	1928/29	1929/30	1930/31	1931/32	1932/33	1933/34	1934/35	1935/36
World exports (including U.S.S.R.)	923	630	825	801	631	549	515	504
+ Quantity afloat at the beginning of the season	45	80	39	38	30	32	35	17
— Quantity afloat at the end of the season .	80	39	38	30	32	35	17	21
= World imports	888	671	826	809	629	546	533	500
— Quantity imported into European countries .	657	515	618	613	446	393	358	360
= Quantity imported by extra European countries.	231	156	208	196	183	153	175	140

It should be noted that the quantity afloat on 1 August 1929 was really 37 million bushels and not 80 million It has been considered opportune to make this modification in the above estimate since at the beginning of August 1929 large quantities of wheat exported to Europe and having reached their destinations had not yet been recorded in the import statistics.

CEREALS

Germany: In the first half of September the weather was fairly warm throughout the country. Subsequently there were frequent rains in Brandenburg, Lower Silesia and Saxony and very abundant rains in Württemberg and Baden. In the third decade there were night frosts in some places. Preparation of the land and winter sowings proceeded regularly and in good conditions. Production of spelt is estimated at 2,319,000 centals against 2,707,000 in 1935 and 3,221,000 on the average: 85.7 per cent. and 72.0 per cent. The corresponding figures for meslin are 21,463,000; 20,840,000 and 14,155,000; 103.0 per cent and 151.6 per cent.

Belgium: In September the alternatively fine and rainy weather favoured agriculture. Late-season work could be carried out in very good conditions. The last cereal crops were bought in. Sowing of winter-barley and, in places, of wheat was begun. The latter crop was expected to extend.

Estonia: Temperatures in September were high. In the first week there were frequent rains but the rest of the month was relatively dry. Thanks to favourable weather harvesting, bringing in and threshing were carried out in good conditions and quality of grain was satisfactory.

Irish Free State: The weather during the first half of September was broken and showery; in the second dry to cold generally, with night frosts and occasional rain. These conditions were unfavourable for work but harvesting was completed and the crops were saved in fair condition. No serious losses were occasioned but the quality of the produce was only average. It is anticipated that the yields of all cereal crops will be well below those of last year.

France: The provisional estimates given in the accompanying tables confirm the forecasts of a small production made a few months ago, particularly for wheat, in regard to which they conform to the forecasts made by the Institute on the basis of crop condition and the weather in winter and spring and up to June. The more or less favourable weather in July and August did not appreciably modity the situation.

The estimates of area do not differ essentially from those of 1 May; a very slight extension of the oats crop would, however, result from the last estimates. Unit-yield of wheat is 11.5 centals (19.2 bushels) against 12.9 (21.6) last year and 13.8 (23.0) on the average in 1930-34; it is one of the smallest since the war but much above that of 1930, which was 10.3 (17.2), and exceeding those of 1926, 1922 and 1920. Yields of other cereals — rye, barley, oats — are not so small, being only about 1 (1) below the 1930-34 average.

The wheat crop is smaller than that of last year in all districts but the decrease is small in the important cereal districts of the north (6 per cent.) and relatively unimportant in the west (11 per cent.); it is very large in the other districts, one-fourth or more in the centre and southwest, 30 per cent. in the southeast.

The meslin crop amounts to 1,823,000 centals (3,144,000 bushels) against 2,033,000 (3,505,000) last year and 2,158,000 (3,721,000) in 1930-34, decreases of 10.3 per cent. and 15.5 per cent. This crop has been obtained on an area of 172,500 acres, a decrease of 3.8 per cent. on last year (179,000) and one of 12.0 per cent. on the average (196,000); the yield of 10.6 centals (18.3 bushels) per acre is a little below the average of 11.0 (18.9).

Total production of the five cereals is 30.9 million centals less than last year and 50.7 million below the 1930-34 average. The specific weight is not indicated for wheat,

Wheat.

COUNTRIES	†) AREA					†) PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 5,151	5,205	5,310	99.0	97.0	1) 101,909	102,894	102,128	1) 169,845	171,487	170,209	99.0	99.8
Austria	629	609	535	103.2	117.5	8,076	9,306	7,576	13,459	15,509	12,626	86.8	106.6
Belgium	386	387	384	99.6	100.4	9,447	8,868	8,836	15,744	14,780	14,726	106.5	106.9
Bulgaria	2,644	2,729	3,078	96.9	85.9	35,583	28,755	31,719	59,304	47,925	52,864	123.7	112.2
Denmark	295	312	259	94 5	114.0	...	8,865	6,679	...	14,774	11,131	...	...
Spain	w) 10,768	11,254	11,237	—	—	72,896	94,793	94,850	121,490	157,985	158,080	76.9	76.9
Estonia	162	154	127	104.9	127.8	1,425	1,360	1,322	2,375	2,267	2,203	104.7	107.8
Irish Free State	...	163	43	...	...	...	4,011	1,019	...	6,686	1,698	...	...
Finland	215	174	71	123 6	303.7	3,172	2,540	1,105	5,287	4,233	1,842	124.9	287.1
France	12,719	13,252	13,281	96.0	95.8	146,612	170,973	183,193	244,349	284,949	305,316	85.8	80.0
Engl. and Wales	1,703	1,772	1,450	96.1	117.4	29,949	36,355	28,932	4,915	60,592	48,220	82 4	103.5
Scotland	94	101	66	93.3	141.5	1,994	2,666	1,649	3,323	4,443	2,748	74.8	120.9
Northern Ireland	7	9	5	75.8	134.0	...	217	119	...	362	198	...	...
Greece	2,104	2,092	1,623	100.5	129.6	14,246	16,308	11,048	23,743	27,180	18,414	87.4	128.9
Hungary	4,107	4,135	3,943	99.3	104.2	52,253	50,535	45,904	87,087	84,223	76,506	103.4	113.8
Italy	...	12,422	12,170	...	...	..	170,076	151,564	...	283,454	252,602	...	...
Latvia w)	146	210	168	69.2	86.4	1,699	2,626	2,303	2,831	4,376	3,838	64.7	73.8
Lithuania	485	536	505	90.4	95.9	4,519	6 056	5,455	7,532	10,093	9,092	74.6	82.8
Luxemburg	43	43	30	100.0	142.0	616	613	448	1,026	1,022	747	100.5	137.4
Malta	10	9	9	105.3	103.9	141	107	179	236	179	299	131.5	78.8
Norway	75	59	32	126 9	230.8	1,297	1,122	482	2,162	1,869	804	115.7	268.9
Netherlands	375	380	267	98.5	140.3	9,755	9,992	7,082	16,259	16,653	11,802	97.6	137.8
Poland	4,302	4,335	4,280	99.3	100.5	46,738	44,331	44,561	77,895	73,883	74,267	105.4	104.9
Portugal	...	1,377	1,321	...	...	5,036	13,256	10,871	8,393	22,092	18,118	38.0	46.3
Romania	8,402	8,496	7,704	98.9	109.1	72,753	57,864	62,069	121,252	96,438	103,446	125.7	117.2
Sweden	694	674	707	103.0	98.2	13,547	14,167	14,351	22,579	23,611	23,918	95 6	94.4
Switzerland	171	150	142	114.0	120.6	2,818	3,594	2,692	4,696	5,989	4,486	78.4	104.7
Czechoslovakia	2,296	2,387	2,147	96 2	107.0	32,440	37,257	32,230	54,066	62,094	53,715	87.1	100.7
Yugoslavia	5,463	5,313	5,099	102.8	107.1	64,454	43,861	47,697	107,421	73,100	79,494	147 0	135 1
Total Europe	§) *64,521*	*65,833*	*63,516*	*98.0*	*101.6*	*733,375*	*760,199*	*748,682*	*1,222,269*	*1,266,972*	*1,247,780*	*96 5*	*98 0*
U.S.S.R. (w)	34,721	32,507	27,080	106.8	128.2	...	263,597	217,208	...	439,319	362,006	...	...
U.S.S.R. (s)	...	60,786	58,721	...	...	...	416,086	337,518	...	693,464	562,519	...	...
Canada	25,288	24,116	25,682	104.9	98.5	139,784	166,403	209,136	232,973	277,339	348,560	84.0	66.8
United States (w)	37,875	33,353	37,073	113.6	102.2	311,400	278,522	331,252	519,000	464,203	552,087	111.8	94.0
United States (s)	13,184	17,995	17,098	73.3	77.1	64,800	95,545	107,744	108,000	159,241	179,574	67.8	60.1
Mexico	1,217	1,199	1,244	109.5	97.9	7,796	6,167	7,248	12,993	10,279	12,080	126.4	107.6
Total North Amer.	*77,564*	*76,663*	*81,097*	*101.2*	*95.6*	*523,780*	*546,637*	*655,380*	*872,966*	*911,062*	*1,092,301*	*95.8*	*79.9*
Chosen	...	800	809	...	...	...	5,848	5,429	...	9,747	9,048	...	...
India	33,631	34,490	33,315	97.5	100.9	211,344	217,907	214,368	352,240	363,179	357,280	97.0	98.6
Japan	1,686	1,627	1,356	103.7	124.4	27,730	29,233	22,080	46,216	48,721	36,799	94.9	125.6
Manchukuo	2,644	2,397	3,243	110.3	81.5	21,488	22,162	27,066	35,812	36,936	45,109	97.0	79.4
Palestine	...	...	480	...	...	...	2,271	1,523	...	3,785	2,538	...	...
Syria and Leb.	1,305	1,288	1,245	101.3	104.8	...	10,026	8,783	...	20,043	14,638	...	...
Turkey	w) 6,396	8,474	7,567	—	—	3) 48,170	55,585	55,878	3) 80,281	92,640	93,128	—	—
Total Asia	*37,961*	*38,514*	*37,914*	*98.6*	*100.1*	*260,562*	*269,302*	*263,514*	*434,268*	*448,836*	*439,188*	*96.8*	*98.9*
Algeria	4,291	4,095	3,893	104.8	110.2	17,086	20,120	19,543	28,476	33,532	32,571	84.9	87.4
Cyrenaica	...	52	20	...	...	...	...	47	...	...	78	...	...
Egypt	1,464	1,463	1,560	100.0	93.8	27,421	25,933	25,877	45,701	43,221	43,128	105.7	106.0
Eritrea	...	11	13	...	...	...	66	44	..	110	73	...	...
Kenya 4)	...	48	44	...	...	...	343	268	...	572	447	...	...
French Morocco	3,142	3,616	2,887	86.9	108.9	7,945	12,022	17,705	13,242	20,036	29,509	66.1	44.9
Tripolitania	...	30	20	...	...	...	106	81	...	176	134	...	...
Tunisia	...	1,829	1,995	...	...	4.630	9,921	7,774	7,716	16,534	12,956	46.7	59.6
Total North Africa	§) *10,726*	*11,003*	*10,335*	*97.5*	*103.8*	*57,082*	*67,996*	*70,899*	*95,135*	*113,323*	*118,164*	*84.0*	*80.5*
Argentina	5) 17,359	5) 14,209	5) 19,369	122.2	89.6	...	83,776	146,361	...	139,624	243,930	...	...
Chile	...	2,051	1,763	...	...	...	20,505	16,387	...	34,175	27,311	...	...
Uruguay	...	1,201	1,055	...	...	...	7,708	5,926	...	12,846	9,876	...	...
Un. of South Afr.	...	...	1,442	...	...	...	12,118	7,268	...	20,197	12,114	...	...
Australia	6) 12,500	11,924	15,223	105.0	82.0	...	85,559	111,464	...	142,598	185,773	...	...
New Zealand 7)	222	252	273	87.9	81.4	...	5,316	4,822	...	8,859	8,037	...	...
TOTALS	**§) 190,772**	**192,013**	**192,862**	**99.4**	**98.9**	**1,574,799**	**1,644,134**	**1,738,475**	**2,624,638**	**2,740,193**	**2,897,433**	**95.8**	**90.6**

See notes on page 715.

Rye.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37		1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37	
				1935 — 1935/1936 = 100	Aver = 100							1935 — 1935/1936 = 100	Aver = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 11,154	11,219	11,141	99 4	100 1	1) 169,498	164,866	172,215	1) 302 677	294,404	307,527	102.8	98.4
Austria	945	930	944	101.6	100.1	10,144	13,673	12,707	18,113	24,416	22,691	74.2	79.8
Belgium	525	529	553	99 3	94 9	7,893	10,372	12,018	14,094	18,522	21,461	76.1	65.7
Bulgaria	431	433	562	99 5	76 7	4,469	4 350	5,424	7,980	7,767	9,685	102.7	82.4
*Denmark	326	391	346	83 5	94 4	.	6,290	5,361	..	11,232	9,573	...	...
Spain	w) 1,471	1,415	1,494	—	—	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81.5
Estonia	338	357	365	94 5	92 6	3,382	3 810	4,437	6,039	6,804	7,923	88.8	76.2
*Irish Free State	.	2	3		.	.	39	53	.	69	95	...	...
Finland	593	598	553	99 2	107 2	7,386	7,706	7,710	13 188	13,760	13,768	95.8	95.8
France	1 634	1,668	1,747	98 0	93 5	15,674	16,448	17,932	27 988	29,372	32,022	95 3	87.4
Greece	166	182	173	91 2	95.6	1,418	1,222	1,231	2,531	2,183	2.198	116.0	115.2
Hungary	1,619	1,537	1,583	105 3	102 3	16,337	16,044	15,950	29,174	28,650	28,483	101.8	102.4
*Italy		272	291		.		3,509	3,506		6,267	6,262	. .	...
Latvia u)	627	658	617	95 4	101 7	6,241	7,941	6,875	11,145	14,180	12,276	78 6	90.8
Lithuania	1,216	1,267	1,217	96 0	99.9	11,328	14,124	12,668	20,229	25,221	22,621	80.2	89.4
Luxemburg	19	19	20	100 0	98 0	255	253	273	456	452	487	100 8	93.6
Norway	15	15	16	95 3	90 5	241	271	256	430	483	458	89.0	94.0
Netherlands	587	519	440	113 1	133 3	11,244	10,323	8,771	20,078	18,434	15,662	108.9	128.2
Poland	14,403	14,293	14,215	100 8	101.3	140,876	145,881	142,456	251,565	260,502	254,387	96.6	98.9
Portugal	...	332	392			2,045	2,618	2,599	3,652	4,674	4 640	78.1	78.7
Romania	1,018	960	941	106.0	108 2	8,819	7,126	7,686	15,747	12,724	13,725	123.8	114.7
Sweden	527	560	552	94.2	95.6	8,307	9,585	9,427	14,834	17,116	16,833	86.7	88.1
Switzerland	38	39	44	99 1	86 1	489	717	796	874	1,279	1,422	68.3	61.5
Czechoslovakia .	2,510	2,514	2,549	99 8	98 5	30,762	36,121	39,507	54,933	64,502	70,548	85.2	77.9
Yugoslavia	628	623	612	100 8	102 6	4,484	4,323	4,605	8,007	7,720	8,223	103.7	97.4
Total Europe	§) *40 796*	*40,667*	*40,730*	*100 3*	*100 1*	*471,402*	*488,529*	*497,955*	*841,787*	*872,371*	*889,204*	*96.5*	*94.7*
*U S S R u)	57,426	58,607	64,255	98 0	89 4	...	465,565	486,374	.	831,368	868,528	. .	...
Canada	636	719	858	88.4	74.2	2,790	5,379	5,006	4,982	9,606	8,939	51.9	55.7
United States	3,015	4,196	2,917	71 9	103.3	15,176	33,000	17,512	27,100	58,928	31,272	46.0	86.7
Total North Amer	*3,651*	*4,915*	*3,775*	*74 3*	*96 7*	*17,966*	*38,379*	*22,518*	*32,082*	*68,534*	*40,211*	*46.8*	*79.8*
*Turkey .	w) 733	756	656	—	—	3) 4,225	4,765	6,236	3) 7,544	8,508	11,136	—	—
*Algeria	4	3	3	147.3	107.7	...	10	23	...	17	40	...	...
*French Morocco	...	5	2	...	...	...	13	11	...	24	20	...	...
Total Africa . .	—	—	—	—	—	—	—	—	—	—	—	—	—
*Argentina	5) 2,100	5) 1,750	5) 1,645	120 1	127.7	...	2,800	5,545	...	5,000	9,901	...	...
Totals	§) **44,447**	**45,582**	**44,505**	**97 5**	**99 8**	**489,368**	**526,908**	**520,473**	**873,869**	**940,905**	**929,415**	**92.9**	**94.0**

See notes on page 715.

Barley.

COUNTRIES	†) AREA					†) PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 4,041	3,966	3,915	101.9	103.2	1) 76,434	74,682	69,512	1) 159,240	155,591	144,820	102.3	110.0
Austria	394	402	421	98.0	93.7	5,646	5,959	6,110	11,763	12,415	12,729	94.7	92.4
Belgium	98	96	89	102.0	110.3	963	2,059	2,112	2,007	4,290	4,400	46.8	45.6
Bulgaria	488	501	607	97.5	80.4	6,674	6,211	7,110	13,905	12,941	14,812	107.4	93.9
*Denmark	909	852	875	106.7	103.9	...	24,229	21,746	...	50,478	45,304	...	...
Spain	w) 4.528	4,549	4,682	—	—	37,690	46,589	53,442	78,523	97,062	111,340	80.9	70.5
Estonia	250	258	267	96.9	93.8	1,845	2,024	2,441	3,844	4,216	5,085	91.2	75 6
*Irish Free State	...	139	119	...	...	...	3,496	2,666	...	7,283	5,555	...	...
Finland	324	315	306	102.9	105.7	4,187	3,658	3,953	8,722	7,621	8,235	114 4	105.9
France	1,811	1,787	1,806	101,3	100,2	21,348	22,621	23,068	44,476	47,127	48,059	94.4	92.5
Engl. and Wales	819	792	924	103.5	88.6	14,493	14,694	16,285	30,193	30.613	33,927	98.6	89.0
Scotland	74	77	84	96.7	88.2	1,434	1,702	1,711	2,987	3,547	3,565	84.2	83.8
*Northern Ireland	3	3	2	90.9	163.6	...	71	39	...	148	81	...	...
Greece	503	510	541	98.6	92 8	4,449	4,272	4,165	9,269	8,901	8,678	104.1	106.8
Hungary	1,134	1,057	1,167	107.2	97.2	13,212	12,268	14,029	27,525	25,558	29,227	107.7	94.2
*Italy	...	481	529	...	...	...	4,410	5,121	...	9,187	10,670	...	...
Latvia	468	477	450	98.2	104.2	3,615	4,511	4,341	7,532	9,398	9,044	80.1	83.3
Lithuania	529	508	490	104.2	108.1	4,777	5,547	5,150	9,951	11,556	10,730	86.1	92.7
Luxemburg	6	6	8	100.0	68.1	76	71	105	158	149	219	106.1	72.1
Malta 8)	5	5	6	103.1	80.7	83	65	128	173	136	267	126.5	64.6
Norway	149	153	140	97.4	106.9	2,683	2,720	2,349	5,589	5,667	4,893	98.6	114.2
Netherlands	107	100	64	106.9	167.7	2,646	2,512	1,598	5,512	5,234	3,329	105,3	165.6
Poland	2,934	3,012	3,000	97.4	97.8	32,188	32,372	31,874	67,059	67,442	66,406	99.4	101.0
*Portugal	...	160	173	...	...	...	1,068	955	...	2,226	1,990	...	...
Romania	3,991	4,079	4,571	97.8	87 3	33,069	20,367	35,311	68,896	42,431	73,567	162.4	93.7
Sweden	255	258	287	98.6	88.6	4,273	4,779	4,928	8,901	9,957	10,266	89.4	86.7
Switzerland	10	10	17	100.8	62.0	159	176	264	331	367	550	90.0	60.1
Czechoslovakia	1,571	1,600	1,700	98 2	92 4	21,456	23,400	27,259	44,701	48,752	56,791	91.7	78.7
Yugoslavia	1,051	1,044	1,054	100.7	99.7	9,322	8,279	9,087	19,421	17,248	18,931	112.6	102.6
Total Europe	*25,540*	*25,562*	*26,596*	*99.9*	*96.0*	*302,722*	*301,538*	*326,332*	*630,678*	*628,219*	*679,870*	*100.4*	*92.8*
*U. S. S. R.	...	21,604	18,219	...	...	..	179,946	139,610	...	374,895	290,859	...	...
Canada	4,432	3,887	4,076	114.0	108.7	35,700	40,308	39,400	74,376	83,975	82,083	88.6	90.6
United States	8,827	12,243	10,640	72.1	83.0	69,120	135,468	102,562	144,000	282,226	213,671	51.0	67.4
Total North Amer.	*13,259*	*16,130*	*14,716*	*82.2*	*90.1*	*104,820*	*175,776*	*141.962*	*218,376*	*366,201*	*295,754*	*59.6*	*73 8*
*Chosen	...	2,548	2,448	...	...	...	25,959	21,341	...	54,082	44,461	...	...
Japan	1,918	1,916	2,019	100.1	95.0	33,514	37,732	35,906	69,822	78,610	74,805	88.8	93.3
*Palestine	...	...	453	...	...	...	1,500	1,006	...	3,125	2,096	...	...
*Syria and Leb	736	715	797	102.7	92 4	...	7,548	6,977	...	15,725	14,535	...	...
*Turkey	w) 2,587	4,260	3,593	—	—	3) 30,777	30,237	33,523	3) 64,120	62,994	69,841	—	—
Total Asia	*1,918*	*1,916*	*2,019*	*100.1*	*95.0*	*33,514*	*37,732*	*35,906*	*69,822*	*78,610*	*74,805*	*88.8*	*93.3*
Algeria	3,166	3,104	3,349	102.0	94.5	13,228	15,849	16,982	27,558	33,020	35,381	83.5	77.9
*Cyrenaica	...	151	90	...	...	...	...	172	...	...	357	...	...
Egypt	282	281	319	100.6	88.6	5,196	5,021	4,851	10,825	10,461	10,107	103.5	107.1
*Eritrea	...	62	53	...	...	...	276	317	...	574	660	...	...
French Morocco	4,109	4,303	3,464	95.5	118.6	27,999	17,188	25,334	58,332	35,809	52,781	162.9	110.5
*Tripolitania	...	272	282	...	...	...	1,213	650	...	2,526	1,355	...	...
Tunisia	...	1,532	1,209	...	...	1,653	8,819	4,189	3,445	18,372	8,727	18.7	39.5
Total Africa	§) *9,089*	*9,220*	*8,341*	*98.6*	*109.0*	*48,076*	*46,877*	*51,356*	*100,160*	*97,662*	*106,996*	*102.6*	*93.6*
*Argentina	5) 1,915	5) 1,940	5) 1,642	98.7	116.6	...	10,141	13,474	...	21,128	28,071	...	...
*Chile	...	161	162	...	...	...	2,251	2,385	...	4,689	4,970	...	...
*Uruguay	...	33	14	...	...	...	217	84	...	451	174	...	...
*New Zealand 7)	25	28	28	90.0	89,4	...	373	315	...	776	657	...	...
TOTALS	**§) 49,806**	**52,828**	**51,672**	**94.3**	**96.4**	**489,132**	**561,923**	**555,556**	**1,019,036**	**1,170,692**	**1,157,425**	**87.0**	**88.0**

See notes on page 715

Oats.

Countries	† Area					† Production							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 6,866	6,893	8,113	99.6	84.6	7) 126,079	118,734	136,318	1) 393,994	371,043	425,991	106.2	92.
Austria	722	742	762	97.3	94.7	8,993	8,616	9,224	28,102	26,924	28,824	104.4	97.
Belgium	691	714	716	96.8	96.5	11,440	17,050	16,114	35,749	53,280	50,355	67.1	71.
Bulgaria	256	268	314	95.6	81.6	2,515	2,041	2,284	7,859	6,379	7,137	123.2	110.
*Denmark	931	911	953	102.2	97.7	...	23,043	21,924	...	72,008	68,511	...	...
Spain	w) 1,358	1,848	1,935	—	—	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.
Estonia	341	342	355	99.6	96.1	2,637	2,964	3,209	8,242	9,262	10,028	89.0	82.
*Irish Free State	...	614	623	...	...	...	13,792	13,284	...	43,099	41,513	...	...
Finland	1,087	1,163	1,126	93.5	96.6	14,449	13,424	14,893	45,153	41,951	46,540	107.6	97.
France	8,234	8,101	8,384	101.6	98.2	93,929	98,228	104,137	293,525	306,960	325,425	95.6	90.
Engl. and Wales	1,417	1,418	1,581	99.9	89.6	23,162	25,491	27,655	72,380	79,660	86,422	90.9	83.
Scotland	828	827	847	100.1	97.7	13,731	15,254	15,026	42,910	47,670	46,956	90.0	91.
*Northern Ireland	265	273	289	97.2	91.6	...	5,828	5,955	...	18,212	18,608	...	...
Greece	...	337	339	...	...	2,632	2,209	2,179	8,226	6,903	6,810	119.2	120.
Hungary	521	502	581	103.7	89.7	5,489	5,421	6,120	17,154	16,941	19,126	101.3	89.
*Italy	...	1,047	1,133	...	...	...	11,358	12,236	...	35,495	38,237	...	...
Latvia	838	822	777	101.9	107.7	6,449	8,508	7,613	20,154	26,587	23,791	75.8	84.
Lithuania	883	841	880	105.0	100 3	7,108	8,807	8,351	22,211	27,523	26,097	80.7	85.
Luxemburg	66	66	70	100.0	94.5	940	984	981	2,938	3,075	3,067	95.5	95.
Norway	210	215	236	97.7	89 2	3,858	4,010	3,904	12,057	12,532	12,201	96.2	98.
Netherlands	318	316	350	100.7	90.9	5,787	6,202	6,346	18,085	19,380	19,830	93.3	91.
Poland	5,569	5,521	5,434	100.9	102.5	57,982	57,275	54,153	181,192	178,982	169,226	101.2	107.
*Portugal	...	516	425	...	...	...	2,131	2,034	...	6,660	6,356	...	...
Romania	2,002	1,970	2,178	101.6	91.9	16,535	13,089	16,928	51,671	40,904	52,899	126.3	97.
Sweden	1,652	1,654	1,611	99.8	102.6	25,935	28,095	24,928	81 047	87,796	77,900	92.3	104.
Switzerland	26	25	40	103.5	64.9	456	445	715	1,427	1,392	2,235	102.5	63.
Czechoslovakia	1,895	1,921	2,014	98.6	94.0	26,882	22,644	30,655	84,007	70,763	95,795	118.7	87.
Yugoslavia	890	919	920	96.9	96 8	6,025	6,126	6,717	18,828	19,144	20,992	98.3	89.
Total Europe	§) *37,007*	*37.425*	*39,563*	*98.9*	*93.5*	*475,196*	*478,215*	*513,904*	*1,484,981*	*1,494.420*	*1,605,942*	*99.4*	*92.*
*U. S. S R.	...	45,271	42,248	...	...	...	402,746	322,460	...	1,258,573	1,007,681	...	...
Canada	13,118	14,096	13,301	93.1	98.6	93,317	134,078	120,468	291,617	418,995	376,462	69.6	77.
United States	5) 34,440	5) 39,924	5) 37,556	86.3	91.7	250,880	382,934	315,201	784,000	1,196,668	985,003	65.5	79.
Total North Amer.	*47,558*	*54,020*	*50,857*	*88.0*	*93.5*	*344,197*	*517,012*	*435,669*	*1.075.617*	*1,615,663*	*1,361,465*	*66.6*	*79.*
*Syria and Leb.	28	30	30	93.3	94.7	...	246	264	...	768	825	...	...
*Turkey	w) 706	566	395	—	—	3) 5,266	5,114	3,333	3) 16,456	15,983	10,414	—	—
Algeria	477	434	516	110.0	92.5	3,307	2,332	3,525	10,334	7,288	11,014	141.8	93.
French Morocco	74	70	73	104.9	101.6	434	340	580	1,357	1,062	1,811	127.8	74.
*Tunisia	...	74	77	...	...	...	397	534	...	1,240	1,667	...	...
Total Africa	*551*	*504*	*589*	*109.3*	*93.7*	*3,741*	*2,672*	*4,105*	*11,691*	*8,350*	*12,825*	*140.0*	*91.*
*Argentina	5) 3,027	5) 2,953	5) 3,631	102.5	83.4	...	11,464	20,977	...	35,825	65,553	...	...
*Chile	...	244	197	...	...	...	2,135	1,858	...	6,672	5,806	...	...
*Uruguay	...	236	160	...	...	...	1,282	684	...	4,007	2,139	...	...
*New Zealand 7)	296	363	372	81.5	79.7	...	1,321	1,317	...	4,128	4,115	...	...
TOTALS	§) **85,116**	**91,949**	**91,009**	**92.6**	**93.5**	**823,144**	**997,899**	**953,678**	**2,572,289**	**3,118,433**	**2,980,232**	**82.5**	**86.**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in som countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Includi Saar Territory with a very small production. — 2) Including spelt. — 3) Incomplete data. — 4) Cultivation by Europeans only. — 5) Area sown. — 6) Approximate estimate. — 7) Area includes that for chaff, hay, feeding-off, etc. — 8) Barley and meslin.

for the others it is very small, especially for meslin and rye, and nearly 200 (194) lb. per bushel below that of last year, while in general quality of this year's crops appears bad. The buckwheat crop appears on the whole fairly good.

Cultivation and first sowings were carried out from 15 September to 15 October in generally favourable conditions despite the fairly frequent storms in the first half of the period; these did not retard the work save in a few districts, especially in the southwest. The first sowings of rye generally sprouted well. At the end of the period, however, complaints began concerning drought in some districts.

Great Britain and Northern Ireland Generally the weather during September in England and Wales was unsettled Thunderstorms followed a period of heavy rains and fog and mist were prevalent during the middle part of the month. Harvesting operations were hindered in many parts of the country. While the temperature during most of the month was higher than average, the deficiency of sunshine created a new low record. Towards the end of the month local groundfrosts prevailed at night. Similar unfavourable conditions were experienced in Scotland except during the last ten days when weather was dry and facilitated work.

The cereal harvest was seriously delayed but the work was practically completed by the end of September The crops are generally free from disease, although the existence of bunt and smut is reported from some areas The quality and condition of wheat is moderately good but the grain is small and soft in many districts. The quality and condition of barley is very good but discoloration is prevalent in many areas Oats are generally fair in quality but condition varies The estimates of the outturn (see Tables) are smaller than the previous forecasts.

Owing to the protracted harvest, autumn cultivation is not as forward as usual.

Hungary· In the first half of the period from 15 September to 6 October the weather was hot and dry, while in the second half it was cold and rainy Precipitation was above average almost throughout the country. At the end of the period threshing of straw cereals was everywhere completed. Quality of wheat and oats is considered good, that of rye and barley only average. Toward 6 October sowing of winter barley was almost completed, that of wheat and winter rye was still going on. At that date one-fourth of the winter wheat area had already been sown. Early sowings have sprouted regularly. Rains hindered ploughing and sowing.

Italy: Preparations for autumn sowings made good progress but in some districts were delayed by the rains. In general the situation is normal In several districts wheat sowings have begun In some places snow has caused the suspension of sowings.

Latvia The first decade of September was characterized by rainy weather, frequent winds and normal temperatures. During the second decade, however, there was only very little precipitation in some parts of the country. The third decade began with a rise in temperature but toward the end of the month there was a relapse to a point a few degrees below normal. For the country as a whole precipitation in September was practically average.

Lithuania: The beginning of September was rainy but the second decade was warm and sunny. Toward the end of the month rain recommenced. Cereals were harvested in perfectly dry condition and their quality was better than last year. From 10 to 20 September the weather was very favourable to sowings.

According to the most recent estimate production of meslin this year is estimated 2,557,400 centals (4,409,300 bushels) against 3,094,000 (5,335,000) in 1935 and 2,378,000 (4,100,000) on the average of the five years ending 1934; percentages 82.7 and 107.6.

Norway: According to the most recent estimate area cultivated to meslin this year is about 10,840 acres against 11,150 in 1935 and 13,560 on the average of the five years ending 1934; percentages 97.2 and 80.0. The corresponding production is estimated at 202,100 centals (348,500 short tons) against 216,210 (372,800) and 230,700 (397,700); percentages 93.5 and 87.6.

Poland: The frequent rains, particularly in the last week of September and the first week of October, and the accompanying sharp fall in temperature hindered cultivation and sowings of winter cereals. At the end of the first week of October these operations were not yet completed in most parts of the country. Vegetation is somewhat backward.

Harvesting was generally early this year and was carried out over the greater part of the country in favourable conditions. Quality of the grain is on the average as follows, in percentages:

	Quality					
	High		Medium		Low	
	1936	1935	1936	1935	1936	1935
Winter wheat	22	25	72	76	6	8
Winter rye	18	37	70	58	12	5
Winter barley	17	23	67	65	16	12
Oats	23	31	64	57	13	12

Romania: In September there were more abundant rains only in the northern areas, while in the south (Muntenia, Oltenia and Dobrogea) precipitation was insufficient. At the beginning of the month temperatures were high but in the second decade they fell so far that there was snow in the mountain areas, in the last decade of the month they again rose. At the beginning of October threshing of straw cereals was almost completed Up to that date the areas prepared for winter cereals were small Here and there sowing of wheat, rye and winter barley had begun

Sweden: September temperatures were slightly below and precipitation much below normal over a great part of the country. Cereals, except winter rye, were brought in in favourable conditions and quality of the grain is good

According to the most recent estimate area cultivated to meslin this year is about 640,000 acres against 621,000 in 1935 and 629,000 on the average of the five years ending 1934, percentages 103.1 and 101.7 The corresponding production is estimated at 11,643,000 centals (20,074,000 short tons) against 12,480,000 (21,532,000) and 11,600,500 (20,001,000), percentages 93.2 and 100.4

Yugoslavia: The weather in September was mild and dry, temperatures fell only toward the end of the month, following on rain and snow in the mountains.

U. S. S. R.: In the latter half of September the weather was prevalently dry while in the first half of October considerable precipitation occurred, accompanied toward the end of September and beginning of the second decade of October by a heavy fall in temperatures, especially in the north and centre of the European territory. On 10 October cereals had been harvested on 211,461,000 acres (95 per cent. of the plan) against 206,719,000 or 99 per cent. at the same date last year. Threshing of wheat was carried out this year with a more accelerated rhythm than last year On 10 October the crop from 185,710,000 acres had been threshed, while in 1935 there had been threshed 161,928,000 acres (79 per cent.)

Data on the production of cereals this year are still lacking. It is, however, known that Ukraina has carried out the plan of cereal deliveries before the fixed date. The kolkhozi in Ukraina, despite unfavourable weather, have had a crop larger than in any preceding year.

The area sown to winter cereals up to 10 October was 86,283,000 acres (91 per cent. of the plan) against 85,090,000 acres (91 per cent.) last year to the same date. On 10 October 71,000,000 acres of the spring wheat area (43 % of the plan) had been ploughed; last year the corresponding figure was 45,300,000 acres 32 per cent.)

Argentina: The monthly report of the Ministry of Agriculture on 18 September gave the following information.

Buenos Aires. — From the last decade of August to the middle of September the weather was generally dry. Germination was uniform thanks to soil humidity and sowings have generally a good appearance save in the south, where the need for rain was felt. In some districts of the centre-east there are complaints of lack of seed.

Santa Fé. — Crop condition was generally good. In the north growth had made good progress; rains were there urgently needed, but not in the south where the crop was late and soil moisture sufficient for germination. Slight damage was caused in the north by locusts.

Córdoba. — The first half of September was dry with very variable temperature. Yellowing was noted, due to the inadequacy of rains. In the east the crop was well forward while in the centre it had made normal progress and in the southwest was late.

Entre-Rios. — Sowings were late, germination was irregular and crop condition in mid-September below normal Locusts were reported. Crop forecasts were uncertain.

Santiago del Estero. – Crop condition was satisfactory in the irrigated areas but only passable in the others, where rain was urgently needed.

In the National Territory of the Pampa the crop had a satisfactory appearance and growth was normal save in the northwest, where wind had caused some damage to sowings.

(Telegram of 22 October): There were general rains in all parts of the country. Crop condition is now considered good.

United States: During the week ending 11 October temperatures were above normal in most sections. The cereal crops benefited from rains in the Middle Atlantic areas but the soil was too wet for seeding in the Central Valleys while the wheat area in the north-west was badly in need of rain.

A reduction of 3 million bushels in the spring wheat estimate of October as compared with that of the preceding month brings the figure of the total wheat crop of the United States down to 627 million bushels. At this level, production is 0.6 per cent. above the outturn of 1935 but 14 3 per cent. below the 1930-34 average.

Temperatures varied widely in the last days of September but the moisture situation was satisfactory in most sections of the country. Farm work was hampered by heavy rains in some States but elsewhere work made progress. The weather conditions were very favourable for the sowing, germination and early growth of winter wheat.

The first days of October were generally fair and moderately cool with substantial precipitation in the Atlantic States where conditions improved greatly. Prospects were then far brighter than they had been previously in the Southern Great Plains but drought conditions were still rather general in north-western areas. Except in the north-west, farm work made good progress and autumn sowing was unusually active.

The winter wheat sowings made rapid progress in the Ohio and Mississippi Valleys. The early sowings were showing a good stand and growing well.

Japan: Harvesting, threshing and bringing in have been carried out in fairly good conditions for spring wheat and in average conditions for spring barley. Weather has been favourable.

Algeria: Threshing has been completed in the later areas. There is no apparent change in previous estimated of the wheat crop; production of soft wheat seems larger than last year, 3,125,000 centals (5,209 000 bushels) about 4,400,000 centals (7,300,000 bushels) against 3,125,000 (5,209,000) in Oran, while that of hard wheat is distinctly smaller than last year. On the other hand, the information gathered in mid-October leads to expectations of a distinctly smaller oats crop.

On the high plateau of Constantine, the very small crop makes the position already difficult; since August seed distribution has been active and grain distribution for the local population has also been carried out.

Quality of wheat is very irregular in Algiers, with some lots of very good density and quality, in Oran it is generally mediocre, specific weight being 1.6 lb per bushel below normal, and a considerable quantity of hard wheat is regarded as unsaleable for milling

Preparations for the next season have been active everywhere where soil conditions allow but the latter is generally too dry despite some storms and showers in September

Kenya. The crop condition of cereals in August was generally satisfactory but more rain was needed.

French Morocco· The last cuttings confirmed the badness of the crop in the past season.

Soil humidity is higher than usual and at the end of September preparations were being made for the renewal of agricultural work, economic conditions, however, were distinctly unfavourable. Renewal of seed is reported to be difficult in certain districts amongst both natives and colonists, amongst the latter lack of money has resulted in much smaller preparation and manuring of the land than in other years

Tunisia· Threshing in August, which was favoured by very good weather, has confirmed a crop rather smaller than the first already very low estimates given in the general tables. Preparation of the land and manuring for the next season were carried out in favourable conditions.

Australia: According to a cable received on 15 October, the wheat crop of Western Australia was seriously damaged in some parts owing to lack of rain. The crops in South Australia also deteriorated in the last four weeks owing to lack of rain. In New South Wales there was a decline in condition and rains were needed to ensure a satisfactory harvest, frost damage was also reported in this State Scanty rainfall was experienced in Victoria but there was an improvement this month and crop condition is now satisfactory.

MAIZE

France: Weather in August and September was favourable in an average way and the crops benefited from the fine weather between 15 September and 15 October though the cold toward the end of that period hastened ripening.

Hungary: Toward 6 October harvesting of maize and maize stalks was in progress. The ears are well developed and numerous.

Maize

Countries	Area 1936 — 1936/1937	Area 1935 — 1935/1936	Area Average 1930 to 1934 — 1930/1931 to 1934/1935	Area % 1936 — 1936/37: 1935 — 1935/1936 = 100	Area % 1936: Average = 100	Production 1936 — 1936/1937 (1 000 centals)	Production 1935 — 1935/1936 (1 000 centals)	Production Average 1930 to 1934 — 1930/31 to 1934/35 (1 000 centals)	Production 1936 — 1936/1937 (1,000 bushels)	Production 1935 — 1935/1936 (1,000 bushels)	Production Average 1930 to 1934 — 1930/31 to 1934/35 (1,000 bushels)	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936: Average = 100
	1,000 acres					1 000 centals			1,000 bushels				
Austria		162	156				2 615	2 960		4 669	5 286		
Bulgaria	1 508	1 499	1 739	100 6	86 7	19 536	22 244	18 921	34 887	39 722	33 787	87 8	103 3
Spain		1 086	1 080				16 215	15 628		28 956	27 906		
France	796	853	840	93 4	94 8		12 622	11 235		22 540	20 063		
Greece		551	611				4 221	4 534		7 538	8 096		
Hungary	2 832	2 843	2 765	99 6	102 5	57 679	31 269	40 848	102 999	55 838	72 944	184 5	141 2
Italy 1)		3 643	3 293				55 551	56 426		99 198	100 761		
Italy 2)			323					4 155			7 420		
Poland	219	230	233	95 4	94 2		2 788	1 875		4 978	3 349		
Roumania	12 963	12 773	11 757	101 5	110 3	103 618	118 591	114 538	185 032	211 771	204 533	87 4	90 5
Switzerland		2	2				53	65		94	116		
Czechoslovakia 3)	212	194	5) 222	109 1	95 4	3 716	2 581	5) 3 539	6 635	4 609	5) 6 319	144 0	105 0
Czechoslovakia 4)	193	194	5) 144	99 2	134 1		1 320	5) 1 909		2 357	5) 3 409		
Yugoslavia	6) 6 450	6) 6 109	6) 6 178	105 6	104 4	112 555	66 765	89 037	200 992	119 224	158 995	168 6	126 4
Total Europe		*30 139*	*29 343*				*336 835*	*365 670*		*601 494*	*652 984*		
U S S R		7 998	9 418				61 509	85 891		109 838	153 377		
Canada	163	168	144	97 2	113 0		4 348	3 157		7 765	5 637		
United States	98 517	95 333	103 284	103 3	95 4	845 040	1 283 312	1 282 974	1 509 000	2 291 629	2 291 025	65 8	65 9
Mexico		7 121	7 840				36 853	40 284		65 810	71 936		
Total N Am		*102 622*	*111 268*				*1 324 513*	*1 326 415*		*2 365 204*	*2 368 598*		
Manchukuo	3 136	3 053	2 519	102 7	124 5	45 318	41 092	36 048	80 926	73 379	64 371	110 3	125 7
Syria & Leb		80	62				831	610		1 483	1 090		
Turkey		1 012	959			7) 11 154	10 177	10 716	7) 19 917	18 173	19 135	—	—
Total Asia		*4 145*	*3 540*				*52 100*	*47 374*		*93 035*	*84 596*		
Algeria	16	15	22	103 8	71 9		88	141		158	251		
Egypt		1 635	1 881				37 236	38 542		66 494	68 825		
Eritrea		10	26				79	227		142	406		
Kenya 8)		129	152				2 300	2 107		4 106	3 763		
French Morocco	1 043	959	848	108 7	122 9	5 278	3 072	3 496	9 425	5 486	6 242	171 8	151 0
Tunisia 9)		44	47				132	130		236	232		
Total N Afr		*2 792*	*2 976*				*42 907*	*44 643*		*76 624*	*79 719*		
Argentina		10) 18 854	10) 15 250				219 802	189 911		392 504	339 127		
*Un of S Afr			8) 11) 5 927				29 597	34 425		52 852	61 474		
Totals (a)		**158 552**	**162 377**				**1 976 157**	**1 974 018**		**3 528 861**	**3 525 021**		
Totals (b)		**166 550**	**171 795**				**2 037 666**	**2 059 904**		**3 638 699**	**3 678 101**		

* Not included in the total — a) Not including U S S R — b) Including U S S R — 1) Spring crop (maggengo) — 2) Summer crop (cinquantino) — 3) Crop grown alone — 4) Mixed crop — 5) 1934 only 6) Area harvested — 7) 37 vilayets only — 8) Cultivation by Europeans 9) Maize and sorghum 10) Area sown — 11) Years 1933 34 and 1934/35

Italy Harvesting has been hindered by heavy rains but work is already well advanced and drying of *maggengo* is in progress Production appears to be good both in quantity and quality A good crop of *cinquantino* is expected

Romania: At the beginning of October crop condition was good in Transylvania, Bukovina and in the centre and north of Basarabia and Moldavia. At that date early-sown crops were being harvested while late maize still required warm weather up to mid-October in order to complete ripening. In Oltenia, in the west of Muntenia and in the south of Basarabia and Moldavia crop condition was average, while in Dobrogea, in the Bărăgan (Jalomiţa) and in contiguous departments the crop was generally very poor.

Yugoslavia: The mild dry weather of September favoured ripening. The rains were also beneficial, particularly in districts that had begun to feel the drought. The optimistic forecasts of a very large crop are still maintained.

U. S. S. R.: In the latter half of September harvesting had begun almost everywhere and on 10 October the *kolkhozi* had already completed it in 2,728,000 acres, 50 per cent. of the plan. Last year at the corresponding date 2,560,000 acres or 36 per cent of the plan had been harvested.

Argentina: The last estimate of production for 1935-36 shows an increase of 6.0 to 10.6 million centals on the July estimate, confirming a very large crop, 28.7 per cent. above the five-year average though 13.2 per cent below the 1934-35 record.

(Telegram of 22 October) Maize husking is in full swing and sowings for the 1936-37 season have already begun.

Chile: According to the most recent estimate production of maize this year is about 1,220,000 centals (2,170,000 bushels) against 1,510,000 (2,700,000) in 1934-35 and 1,560,000 (2,780,000) on the average of the five years ending 1933-34, percentages 80.5 and 78.0.

French Indo-China: The rainy-season crop in Cambodia was very satisfactory, on an area larger than that in 1935 it gave a proportionately larger crop, exceeding 6,600,000 centals (11,800,000), average quality is above that of last year. The crop was small in some provinces of North Annam but in the rest of Annam and in Tonkin it had a good appearance at the end of August.

French Morocco: Crops were fairly good in the south and on the coasts despite attacks of *sésamie*. In the centre, in Meknes and Fez and in the uplands irrigated maize continued to develop under favourable conditions at the end of September.

Tunisia: The crop of maize and sorghum was average or good according to district.

RICE

Italy: Harvesting is almost completed and in general a good crop is expected.

Argentina: For next season a considerable increase in sown area on that of last year is expected. In September preparation of the soil was in full swing throughout the north.

French Indo-China: Weather in August was generally favourable for transplanting and for growth, which was practically everywhere satisfactory. In Tonkin excessive flooding injured rice not yet transplanted and similar reports come from Cambodia. In other areas of Cambodia and South Annam some drought damage occurred. The first harvests in Tonkin and Annam were satisfactory to very satisfactory.

Japan: According to the most recent estimate area cultivated to rice this year is about 7,855,000 acres against 7,852,000 in 1935 and 7,887,000 on the average of the five years ending 1934, percentages 100.0 and 99.6. The corresponding production is estimated at about 277,609,000 centals (616,896,000 bushels) against 235,097,000 (522,427,000) and 249,718,000 (554,917,000); percentages 118.1 and 111.2.

Taiwan: The second crop developed in average conditions, with insect damage in places

POTATOES

The weather conditions of recent months have been varied, with an excess of moisture, in most of the important potato-growing countries Some improvement, however, occurred lately.

Estimates of production are now available for the two largest producers, Germany and Poland. The 1936 crop in Germany is plentiful and, at 1,013 million centals (1,688 million bushels), not far short of the record crops of 1934 and 1932. In Poland, similarly, production in 1936 is good; it is below the high level of 1935 and 1934 but above the average of the preceding five years.

Quantitative estimates of the crops in France and Czechoslovakia are not yet available, in France, the crop, though previously judged to be poor, showed an improvement between 15 September and 15 October.

In the countries of minor importance as potato producers, fairly good yields have been secured. The Netherlands, a large exporter, has, however, a poor crop, owing mainly to a contraction in the area under the crop. Of the North American countries, which, contribute only about one-tenth of the total production of all countries, excluding the U. S. S. R., this year's crop is distinctly poor in the United States.

If the two large producing countries of Europe which have not yet issued estimates – France and Czechoslovakia – secure at least satisfactory yields, the crop of 1936, thanks to the results in Germany and Poland, can be described as good.

* * *

Germany Very low temperatures in the third decade of September caused some damage to leafage and in some places even frosting has occurred.

Belgium: Lifting is in full swing. Medium-early varieties have suffered severely from disease. Late varieties are better developed.

Irish Free State The yields of potatoes are expected to be below those of last year.

France: Weather from mid-September to mid-October generally favoured lifting. In several districts the crop appears rather larger than expected but quality leaves something to be desired and it is feared that the crop will have rather bad keeping quality.

Great Britain and Northern Ireland The lifting of the main potato crop was progressing at the beginning of October and tubers were mostly of average size. It was anticipated that yields would be slightly lower than average and disease was reported from most districts while the keeping quality of the tubers remained doubtful.

Production and yields per acre in England and Wales are below those of last year and the average. In Scotland the crop is larger than that of 1935 but falls below the average.

Potatoes.

COUNTRIES	AREA					PRODUCTION							
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936	
	1,000 acres			1935 = 100	Average = 100	1,000 centals			1,000 bushels of 60 lbs			1935 = 100	Average = 100
Germany s)	332	325	600	102.3	55.4	33,864	28,790	63,700	56,439	47,982	106,164	117.6	53.2
t)	6,569	6,472	6,469	101.5	101.5	979,142	875,452	945,291	1,631,871	1,459,057	1,575,454	111.8	103.6
*Austria . .	...	494	490	...	...	...	45,191	57,939	...	75,316	96,562	...	...
*Belgium	402	403	413	99.8	97.4	...	66,270	79,056	...	110,448	131,757	...	...
*Bulgaria .	42	36	34	116.9	125.0	...	2,663	1,590	...	4,439	2,650	...	...
*Denmark	186	186	175	100.1	106.5	...	27,170	25,827	...	45,282	43,044	...	...
*Spain	...	1,060	1 036	...	...	...	106,632	106,667	...	177,716	177,775	...	...
Estonia	183	182	170	100.6	107.9	18,603	19,681	19,143	31,005	32,800	31,905	94.5	97.2
*Irish Free State	...	336	345	...	...	...	57,731	55,223	...	96,218	92,039	...	...
Finland	215	204	191	105.4	112.4	29,046	27,978	23,417	48,409	46,629	39,028	103.8	124.0
*France	3,465	3,490	3.496	99.3	99.1	...	315,700	344,723	...	526,156	574,527	...	...
England and Wales .	456	463	476	98.5	95.7	60,256	64,490	69,091	100,427	107,483	115,151	93.4	87.2
Scotland	133	132	139	101.1	96.0	20,496	19,846	21,522	34,160	33,077	35,870	103.3	95.2
*Northern Ireland .	132	129	138	102.1	95.7	...	19,862	20,392	...	33,103	33,987	...	...
*Greece .	...	47	38	...	...	...	2,297	1,865	.	3,829	3,108	...	...
Hungary	726	695	711	104.5	102.2	59,067	30,703	38,893	98,443	51,171	64,820	192.4	151.9
*Italy .	...	1,004	975	...	...	...	46,600	52,189	...	79,332	86,980	...	...
Latvia	296	306	251	96.8	118.0	27,489	32,213	27,887	45,815	53,688	46,477	85.3	98.6
Lithuania	442	435	423	101.5	104.5	44,806	39,105	44,057	74,675	65,174	73,427	114.6	101.7
Luxemburg.	41	41	40	99.8	100.1	4,266	3,196	4,236	7,111	5,326	7,060	133.5	100.7
Malta	10	8	7	123 6	137.5	525	392	574	875	654	956	133.8	91.5
Norway	127	123	119	104.0	106.9	22,380	20,205	19,192	37,299	33,674	31,986	110.8	116.6
Netherlands	277	344	395	80.6	70.3	48,061	58,624	68,343	80,100	97,704	113,903	82.0	70.3
Poland	7,149	6,998	6,742	102.2	106.0	707,025	716,543	677,552	1,178,351	1,194,214	1,129,231	98.7	104.3
*Portugal .	...	80	76	...	...	...	11,305	13,305	...	18,842	22,174	...	...
*Romania	...	511	482	...	...	...	41,778	37,744	..	69,629	62,905	...	...
Sweden .	319	319	331	99.9	96.3	41,249	38,374	40,936	68,746	63,956	68,226	107.5	100.8
Switzerland.	116	113	116	102.6	100.5	12,787	14,956	16,190	21,311	24,927	26,983	85.5	79.0
Czechosl. s)	104	99	90	105.1	116.2	7,322	5,975	6,770	12,204	9,958	11,284	122.6	108.2
*t)	1,772	1,752	1,692	101.2	104 7	...	163,284	194,859	...	272,135	324,758	...	...
*Yugoslavia .	655	656	617	99.9	106.2	...	29,794	32,118	...	49,656	53,529	...	...
Total Europe	*17,495*	*17,259*	*17,270*	*101.4*	*101.3*	*2,116,384*	*1,996,523*	*2,086,794*	*3,527,241*	*3,327,474*	*3,477,925*	106.0	*101.4*
*U. S S R.	...	18,226	14,724	...	...	...	...	1,070,731	...	...	1,784,516	...	...
Canada . .	496	507	556	97.9	89.2	38,514	38,670	46,160	64,190	64,450	76,934	99.6	83.4
United States	3,217	3.551	3,426	90.6	93.9	193.200	232,607	221,944	322 000	387,678	369,907	83.1	87.0
*Syria and Lebanon . . .	...	18	18	...	...	...	1,004	903	..	1,673	1,505	...	...
*Turkey. . .	...	115	100	...	...	...	2,831	2,711	...	3,885	4,518	...	...
Algeria . s)	17	18	24	98.1	72.9	1,005	1,067	946	1,675	1,778	1,576	94.3	106.3
*t)	25	23	23	108.9	106.0	...	1,319	1,046	...	2,199	1,743	...	...
*Eritrea . . .	...	1	1	...	...	...	8	6	...	13	9	...	...
*New Zealand	...	23	25	...	...	...	2,710	2,856	...	4,517	4,760	...	...
TOTALS . . .	**21,225**	**21,335**	**21,276**	**99.5**	**99.8**	**2,349,103**	**2,268,867**	**2,355,844**	**3,915,106**	**3,781,380**	**3,926,342**	**103.5**	**99.7**

*) Countries not included in the totals. — *s*) Early potatoes — *t*) Late potatoes.

Hungary: Toward 6 October lifting was still going on. The crop is well developed and healthy.

Italy: Expectations of a good crop have been confirmed.

Lithuania: Weather has favoured lifting.

Luxembourg: Excessive moisture has in many cases led to rot.

Netherlands: Condition of potatoes for human consumption still in the ground in mid-September was good. Some damage by phytophthora was reported. Quality of early varieties in some districts left room for improvement, that of the ordinary crop varied with situation and permeability of the soil. Potatoes for starch remained small and a low starch content was expected.

Sweden: Lifting was carried out in good conditions but in some districts there were complaints of rot.

Canada: The potato acreage planted this year was 2.1 per cent below the area in 1935 and 10.8 per cent below the average of the preceding five years. Production is practically equal to that of 1935 but 16.0 per cent. below the average. The distribution of the crop by Provinces provides a decided contrast with conditions a year ago. The Maritime Provinces obtained a good crop while the southern districts of the Prairie Provinces registered an extremely poor harvest. Large yields were secured this year in the normal surplus-producing area, whereas a year ago there were excesses in the deficit areas. The fine weather experienced generally in September except in parts of Quebec, Northern Alberta and British Columbia served to improve the late crop prospects but could not entirely offset the early season damage in many producing areas.

Chile. According to the most recent estimate production of potatoes this year is about 9,110,000 centals (15,180,000 bushels) against 10,200,000 (17,000,000) in 1934-35 and 10,360,000 (17,260,000) on the average of the five years ending 1933-34, percentages 89.3 and 87.9.

SUGAR

Recent weather conditions have continued favourable for sugar-beet and a further improvement was registered in the crops in September and the first half of October. Conditions at the beginning of the year and in the first stage of growth were rather adverse in most of the beet-growing countries of Europe but since the beginning of August there has been a definite general improvement. During September and up to the middle of October, when lifting began, there was warm, wet weather favouring the growth of roots, the weight of which is above the average in many countries. There were frosts in the first decade of October in the more northerly countries but no appreciable decline in condition resulted. Liftings in most areas in Germany showed yields per acre larger than last year and approaching the average. The work of lifting was facilitated by soil conditions and progressed regularly. The situation was not as good to the north of Magdeburg, in Anhalt and East Brunswick owing to the hardness of the soil following the lack of rain. In Central Hanover, frost and cold impeded growth and lifting, owing to the condition of the soil and a shortage of labour, was difficult. The best results in Germany are expected in Lower Silesia, where the cultivated area is larger and the average yield very high.

1936-37 Season. — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934	1936	1935	1930 1934
	oz.	oz.	oz.	oz.	oz.	oz	%	%	%	oz.	oz	oz.
3rd. WEEK OF SEPTEMBER.												
Czechoslovakia	19.4	12.9	1) 12.2	14.7	9.4	1) 14.5	18.3	18.5	1) 15.7	3.6	2.4	1) 1. 9
4th. WEEK OF SEPTEMBER.												
Germany	22.1	18.3	19.3	20.9	16.5	16.4	17.8	17.5	17.4	3.8	3.2	3.3
Belgium	23.9	—	1) 22.6	30.0	—	1) 24.3	15.6	—	1) 15.9	3.7	—	1) 3.6
Denmark	17.6	18.5	2) 16.1	13.1	12.2	2) 14.7	17.6	16.2	2) 15.8	3.1	3.0	2) 2.6
Finland	18.0	15.0	1) 20.3	17.9	21.0	1) 25.9	—	14.1	1) 15.9	—	2.1	1) 3.2
France	18.2	17.6	19.1	24.3	14.6	17 6	15.5	15.8	17.1	2.8	2.8	3.3
Netherland	26.0	26.9	—	—	—	—	16.6	16.7	—	4.3	4.5	—
Czechoslovakia	20.1	13.5	17.6	13.9	9.4	11.3	18.4	18.7	18.3	3.7	2.5	3.2

1) Average of 4 years. — 2) Average of 3 years.

The weather conditions were favourable in Belgium, owing to evenly distributed rains, in Denmark, the Irish Free State and France, where there was better weather during the first half of October, with beneficial effects on the size of the roots; in Great Britain, weather has been fine recently, with somewhat excessively cold nights; in Latvia, Lithuania and the Netherlands it has also been favourable.

Conditions in Poland in the first decade of October were not too favourable as the copious rains have caused rotting in some areas. In some parts the rains made lifting impossible. The yield per acre, however, is thought tc be higher than that of last year.

Fairly favourable conditions were experienced in Sweden, where the beets show a good average yield, and in Czechoslovakia, where, up to the beginning of October, the beets benefited from warm, sunny weather with moderate rains greatly assisting growth; during the first decade of October weather conditions deteriorated and there were excessive rains and a sudden fall in temperature but at the present stage, any damage resulting from these conditions cannot appreciably affect the final results.

The beet crops in Yugoslavia made good progress during the fine weather of September and did not suffer severely from the excessive rains of early October though the latter hindered carting.

In the U. S. S. R., the improvement in the beet situation recorded a month ago continued although here also the rains of the early part of October impeded lifting and transport in some areas.

The information from Canada and the United States is satisfactory and average yields per acre are expected in both countries.

Production of Beet-sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1936-37	
	1936 37 1)	1935 36	Average 1930-31 to 1934 35	1936 37 1)	1935 36	Average 1930 31 to 1934 35	1935-36 = 100	Average = 100
	Thousand centals			Short tons				
Germany	38,227	36,905	36,757	1,911,317	1,845,244	1,837,850	104	104
Austria .	3,314	4,539	3,842	165,700	226,950	192,101	73	86
Belgium . .	5,456	5,229	5,490	272,800	261,456	274,476	104	99
Bulgaria .	198	323	667	10,000	16,162	33,361	61	30
Denmark .	4,409	5,141	3,468	200,000	257,100	173,392	86	127
Irish Free State	2,155	1,985	740	107,743	99,241	36,978	109	291
Finland .	220	191	143	10,000	9,540	7,150	116	154
France	20 503	20,283	23,224	1,030,000	1,010,000	1,161,162	101	88
Great Britain	10,817	11,339	10 011	540,850	566,929	500,526	95	108
Hungary .	2,844	2,579	3 166	142,000	128,926	158,302	110	90
Italy	7,231	7 069	7 884	362,000	353,458	394,199	102	92
Latvia	758	1,117	608	37,885	55,872	30,410	68	125
Lithuania	492	488	270	24,600	24,398	13,494	101	182
Netherlands	5,225	4,976	5 273	261,000	248,783	263 653	105	99
Poland	9,789	9,787	10 912	489,000	489,330	545,617	100	90
Romania	2 271	3,247	2 455	114 000	162,362	122,754	70	92
Sweden	6,504	6,493	5,036	325,000	324 628	251,811	100	129
Switzerland	220	198	165	11,000	10,000	8,230	111	134
Czechoslovakia	15,220	12 582	16 547	761,009	629,067	827,361	121	92
Yugoslavia	1,942	1,980	1 791	97,100	99,004	89,525	98	108
Total Europe a)	*137,795*	*136,451*	*138 449*	*6 873,004*	*6,818,450*	*6,922,352*	*101*	*100*
U S S R	44,093	44,093	27 580	2 000 000	2,000,000	1,378,999	100	160
Total Europe b)	*181,888*	*180 544*	*166 029*	*8,873,004*	*8,818,450*	*8,301,351*	*101*	*110*
Canada	1,499	1,362	1 316	75,000	68,099	65 814	110	114
United States	29,763	25,483	28 056	1,490,000	1,274,100	1,402,765	117	106
Total N America	*31,262*	*26 845*	*29 372*	*1,565,000*	*1,342,199*	*1,468,579*	*116*	*106*
Japan	1,014	784	629	51,000	39,190	31,470	129	161
Turkey	1,499	1,311	861	75,000	65,574	43,065	114	174
Total Asia	*2,513*	*2,095*	*1,490*	*126,000*	*104,764*	*74,535*	*120*	*169*
TOTALS a)	**171,570**	**165,391**	**169,311**	**8,564,004**	**8,265,413**	**8,465,466**	**104**	**101**
TOTALS b)	**215,663**	**209,484**	**196,891**	**10,564,004**	**10,265,413**	**9,844,465**	**103**	**110**

a) Not including U S S R — *b*) Including U S S R 1) Approximate data.

The preliminary approximate estimates based on the various information to hand of the probable production of beet-sugar in European countries, Canada, the United States, Japan and Turkey are assembled in the preceding table.

Many estimates have been sent directly to the Institute by Governments and Associations of manufacturers; for certain countries the figures reproduced here are those of the Association Internationale Sucrière of Vienna, whose statistics are shown separately; for certain other countries the available information on area, weather, sugar content, etc., has been adopted as a basis. In the case of Spain the absence in information makes it impossible to estimate probable production while for the U. S. S. R. the probable production is very roughly estimated as being equal to last year's as the area is practically the same and the unit-yield does not appear to differ considerably from that of last year. The figures for the U. S. S. R. given in the table must, however, be taken with due caution.

The figures in the following table
are supplied by the Association Internationale Sucrière of Vienna.

COUNTRIES	Sugar-beet worked up		Raw sugar	
	1936	1935	1936-37	1935-36
	THOUSAND CENTALS			
Germany	233.319	217,311	38,227	36,905
Austria	19,542	25,287	3,313	4,539
Belgium	37.479	35,054	5,555	5,296
Denmark	27,558	33,839	4,630	5,397
Irish Free State	13,779	12,614	2,138	1,962
Hungary	18,960	15,189	2,844	2,579
Italy	50.706	46,496	7,363	6,362
Poland	54,366	54,764	9,590	9,802
Romania	11,464	17,086	1,726	2,967
Sweden	41,866	40,582	6,504	6,493
Czechoslovakia	89,189	73,889	15,220	12,582
Yugoslavia	14.154	12,892	1,942	1,980
Turkey	8,819	7,364	1,499	1,311
Total	**621,201**	**592,367**	**100,551**	**98,175**
	SHORT TONS			
Germany	11,665,802	10,865,398	1,911,315	1,845,244
Austria	977,070	1,264,329	165,661	226,930
Belgium	1,900,000	1,750,000	277,770	264,800
Denmark	1,380,000	1,691,900	230,000	269,800
Irish Free State	689,000	630,709	107,000	98,000
Hungary	950,000	759,454	142,000	128,930
Italy	2,500,000	2,324,793	368,000	388,110
Poland	2,718,000	2,738,139	480,000	490,100
Romania	570,000	854,000	86,300	148,340
Sweden	2,093,000	2,029,077	325,000	324,628
Czechoslovakia	4,459,386	3,694,393	761,009	629,067
Yugoslavia	708,000	644,615	97,100	99,004
Turkey	400,000	368,219	75,000	65,574
Total	**31,010,258**	**29,615,026**	**5,026,155**	**4,908,527**

It would appear from these preliminary estimates that beet-sugar production will be larger than last year's in both Europe and the world as a whole. The increase is slight and will prove, perhaps, to be smaller than was previously expected, but it is not unlikely that the preliminary estimates will be increased, in view of their conservative character.

E. R.

* * *

Belgium: The beets have a fairly good appearance but there is abnormal bolting.

France: Weather from mid-September to mid-October was on the whole favourable to lifting. Sugar content is confirmed to be generally rather poor, while leafage is abundant. There was, however, some improvement in the second week of October thanks to the prevailing good weather.

Great Britain and Northern Ireland: The lifting of sugar-beet had only just commenced in England and Wales at the beginning of October. The crop made some improvement during September and the indications are that the yield will be about average.

Hungary: Toward 6 October lifting and transport had begun. The recent rains favoured development and the roots are sound and fairly well grown.

Italy: Production of beet is mediocre but sugar content is fairly high.

Netherlands: Crop condition in mid-September was good.

Sugar-beet.

COUNTRIES	AREA					PRODUCTION							
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936	
				1935 = 100	Average = 100							1935 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 short tons				
Germany . .	961	921	887	104.3	108.3	252,435	232,984	232,837	12 622	11,649	11,642	108.3	108 4
Belgium . .	127	127	133	100.1	95.7	...	33,844	36,475	...	1,692	1,824	. .	...
Bulgaria .	9	17	31	50.2	28 2	...	3,401	4,873	...	170	244	...	...
Denmark . .	122	124	97	98.4	125.9	...	41,339	26,711	...	2,067	1,336	. . .	...
Finland . .	8	7	6	109 3	140.1	1,764	1,517	1,214	88	76	61	116.3	145.3
France 1) . .	2) 712	748	780	96.0	92.1	...	183,379	198,168	...	9,169	9,908	...	...
Engl.and W .	357	367	319	97.2	111.9	64,774	75,040	63,836	3,239	3,752	3,192	86.3	101.5
Scotland . .	7	7	3	94.0	279.4	...	1,478	490	...	74	25	...	...
Hungary . .	122	116	128	104 6	95 1	23,495	16.953	22,676	1,175	848	1,134	138.6	103.6
Italy. . . .	...	227	238	...	...	...	51,252	56,494	...	2,563	2,825	...	...
Latvia . . .	...	38	3) 29	...	...	...	6,471	4) 5,749	...	324	4) 287	...	...
Lithuania. .	17	17	8	100.0	210.2	...	2,998	1,423	...	150	71	...	..
Netherlands.	108	102	111	106.5	97.3	35,274	33,648	37,188	1,764	1,682	1,859	104 8	94 9
Poland . . .	297	293	327	101.3	91.0	..	55,128	62,945	...	2,756	3,147	...	..
Sweden . .	126	125	105	100.7	119.5	40,477	41,138	32,391	2,024	2,057	1,620	98.4	125 0
Switzerland .	4	4	4	111.3	117.3	...	1,323	1,161	...	66	58	...	...
Czechoslov. .	381	387	425	98 4	89.7	...	80,521	100.434	...	4,026	5,022	...	...
Yugoslavia .	75	74	100	100.4	75.1	...	10,675	14,001	...	534	700	...	...
U. S S. R. .	5) 3,021	3,027	3,144	99.8	96 1	...	357,371	233,612	...	17,868	11,680	...	...
Canada. . .	56	53	49	106.5	113 2	10,580	9,316	9,283	529	466	464	113.6	114.0
United States	819	763	801	107.3	102.2	184,000	158,160	178,884	9,200	7,908	8,944	116.3	102.9

1) Including beets for usines — 2) Estimate of 1th June — 3) Average 1932 to 1934 — 4) Average 1933 and 1934. — 5) Area sown on 15 May, those estimate by Plan in 3,076,000 acres

U. S. S. R.: Lifting has been slower than last year and on 5 October had been carried out on an area representing 33 per cent of the plan, against 50 per cent. at the corresponding date last year. There has also been some delay in transporting the roots.

Barbados: Weather conditions in August were favourable for the young cane plantations and it was expected that next year's crop would be another large one.

Canada: At 56,000 acres, the total area under sugar-beet this year is 6.5 per cent greater than last year and 13.2 per cent. above the 1930-34 average. The increase is due to the establishment of new factory in Alberta.

British Guiana: The weather in August was hot and sunny, with occasional light showers. Grinding of the autumn crop was general and good yields were expected.

Leeward and Windward Islands: During the month of August the weather was generaly favourable for sugar-cane and the growing plantations for next year's crop were in very good condition and growth well advanced. The 1935-36 production of first sugar in St. Lucia was estimated at 178,000 centals (8,900 short tons) as against 157,000 (7,800) in 1934-35 and 116,000 (5,800) on the average of the preceding five seasons. Percentages: 113.8 and 154.1. Production of sugar in St. Kitts-Nevis was estimated at 631,000 centals (31,600 short tons) as compared with 638,000 (31,900) last season and 462,000 (23,100) on the average. Percentages: 98.9 and 136.5.

Trinidad: Weather conditions in August were favourable for sugar-cane. The rainfall was above the average and very beneficial to most plantations. The 1935-36 sugar crop was estimated at 3,464,000 centals (173,200 short tons) as against 2,638,000 (131,900) in 1934-35 and 2,250,000 (112,500) on the average of the preceding five seasons. Percentages: 131.3 and 154.0.

India: According to the second estimate the area cultivated to sugarcane this year is about 4,232,000 acres against 3,681,000 in 1935-36 and 3,044,000 on the average of the five years ending 1934-35; percentages 115.0 and 139.0.

French Indo-China: Growth was satisfactory at the end of August in Tonkin and North Annam, less so in Central and South Annam.

Netherlands Indies: In the latter half of September the weather was characterized by the transition from the east to the west monsoon. Light local rains have been recorded. Condition of old plantings is good, despite some cases of drought damage. Young plantings continue to develop favourably but there is a certain lack of water. Rats, white cochineal, thrips and fusarium are reported.

Taiwan: The crop now being cut is rather mediocre

Mauritius: In August all sugar mills were operating and reports from fields and factories were satisfactory.

VINES

The grape harvest is progressing in most countries in generally good conditions and the final stage of ripening was also favoured by good weather.

Information on the crops in Greece and Portugal is almost entirely lacking. For the latter country, the only information available is that the quota fixed by the Casa de Douro for the commercial production of the region is equal to that of last year and that the gathering has given satisfaction. The Spanish vines have suffered in several districts from bad weather and mildew but no forecast can be made of the actual production of the country and all that can be said is that it will be exceptionally light.

All the information at present available for other countries, excepting Hungary, indicates unit-yields much below those of last year and often below the last five-year average. The decrease on last year's crops is particularly marked in France (25-30 per cent.), Italy (about 25 per cent.), French North Africa (at least 40 per cent.) and Romania. The series of five Italian crops from 1930 to 1934 including only a single good crop against two passable and two bad ones; the present production of that country seems not much below the average and the same applies to Romania, since average production in that country is growing rapidly; for Bulgaria, Germany, Switzerland and the United States it seems for the same reason that the results are above average. On the other hand the French crops would show a decrease on the average of around 15 per cent. and for North Africa this percentage exceeds 30 per cent.

In all, and despite the uncertainty of many partial forecasts, it seems that production in the northern hemisphere, not including the Soviet Union, will be between 3100 and 3300 (3700 and 4000) million gallons. The decrease on last year would thus be about 1300 (1600) million, about 30 per cent.; with respect to the average of 1930-34 the decrease would be about half, the greater part being attributable to the Franco-Algerian group and to Spain, owing particularly to the abnormal conditions in the latter country.

P. V.

* * *

Germany: To avoid the danger of rot in consequence of the excessive humidity at the end of September the vintage has been prematurely carried out, especially in Baden and Wurttemberg. Crop condition on 1 October was 2.5 on the system of the country against 2.1 on 1 September.

According to the most recent estimate the area cultivated to vines this year is about 203,000 acres against 200,000 in 1935 and 205,000 on the average of the five years ending 1934, percentages 101.5 and 98.8.

France: Gathering of grapes was effected in good conditions on the whole. Some difficulty was encountered in parts of the south where weather conditions were unfavourable at the end of September. In central and eastern parts fine weather encouraged ripening but in the south-west rains were an adverse influence. Abnormal oidium attacks occurred in the south and east.

The results show a large deficit, compared with last year (amounting to 25.35 and even 50 and 60 per cent., according to district) and with the average of the preceding five years (1,250 million Imperial gallons or 1,500 American gallons). The year 1936 is considered to be one of the worst, recording light clusters, severe late frosts, mildew attacks at the end of June, eudemia attacks, a drought in the south at the ripening stage and a rather severe attack of oidium before gathering. An estimate is almost impossible at present; it appears that the crop is larger than the two lowest previously recorded of 1930 and 1926 (1,002 million Imperial gallons or 1,204 million American gallons and 937 million Imperial gallons or 1,125 million American gallons). It approximates to the lightest crops of the last quinquennium (1,085 million Imperial gallons or 1,316 million American gallons in 1932 and 1,139 million Imperial gallons or 1,358 million American gallons in 1933) owing to the increased productivity of recent years. The must yield this year, however, is rather low in the important producing areas.

Quality is generally good and a high alcoholic degree is anticipated in the south.

Hungary: Following on the warm weather in September ripening began in good conditions. The cold rainy weather at the end of the month, however, checked complete ripening. Toward 6 October the vintage had begun in the majority of the viticultural districts but was hindered by the rain.

Italy. The vintage was hindered in some districts by bad weather, especially in the North and Centre, where there are some cases of damage. Production varies considerably but in general the crop is not expected to be large and quality is average.

Luxembourg: Disease and frost have led to a premature vintage.

Romania: Crop condition at the beginning of October was good in Transylvania but only average or bad in other provinces As a result of the cold the grapes are small and the sugar content below that of previous years.

Argentina: A very plentiful crop for 1936 is confirmed. The outturn in Mendoza is estimated at about 20 million centals of fresh grapes, the total for Argentina thus reaching 24 to 26 million centals of grapes. The crop is thus at least equal to that of 1929 when the crop was exceptionally large. If utilized entirely for wine, a crop of this size would yield nearly 185 million Imperial gallons (225 million American gallons) of wine.

From this theoretical total, the quantity withdrawn from vinification by the *Junta Reguladora de Vinos* must be deducted. Last year this quantity amounted to 7,900,000 centals corresponding to 58 million Imperial gallons (70 million American gallons). The *Junta* proposed to increase the quantity this year but the actual outurn of wine is probably larger than last year's (97,140,000 Imperial gallons or 116,660,000 American gallons).

After allowance is made for stock on 1 January, the total volume of supplies for 1936 is in the neighbourhood of 250 million Imperial gallons (300 million American gallons). This is 20 (25) million gallons below last year's figure but it is considerably in excess of the probable consumption. Consumption last year was 17.5 (21) million gallons or nearly 13 per cent larger than that of 1934, reaching 136 (164) million gallons) A further increase may be expected this year but the stocks on 31 December will amount, in round figures, to 110 (130) million gallons

The figures illustrate the extent of overproduction and, on the other hand, the efforts of the *Junta Reguladora de Vinos* to remedy the situation In two years, with one average and one very plentiful crop, the *Junta* has succeeded in reducing stocks by at least 70 (80) million gallons, or 30 to 40 per cent

The *Junta* also recorded compensated removals of vines reaching 5,300 acres up to 18 July, or about 1.4 per cent of the total vine area, corresponding with a slightly larger proportion of the total production of the country. It is now examining proposed removals on a further 42,000 acres, 34,600 acres of which are in the Mendoza province and 6,200 acres in San Juan, largely consisting of the less economic vines, in particular those affected by phylloxera in San Juan covering about 10,000 acres.

The efforts of the *Junta* have also brought about an improvement in the quality, in particular by setting a limit for the gathering and by supervising industrial vinification, and an increase in producers' prices of 56 per cent (the buying price for grapes has increased from 1 50 pesos per quintal in 1934 to 2 35 pesos in 1935), without a change in the retail price of wine.

Algeria: The vintage was everywhere completed at the beginning of October The results confirm the large and general decline in production, in addition, the yield of wine has frequently been high; in Kabylie 15 lb. of grapes were required for one Imperial gallon (13 lb for one American gallon) against 13 lb (10 to 11) in a normal year. The decrease on last year, which was mediocre, varies from 30 per cent. to 50 per cent. in Algiers, in some parts of the Oran littoral production was nil, in others the decrease was 20-50 per cent. and in the Tell 30-50 per cent, in Constantine, more favoured and having in August received rains that greatly aided size and maturity, the decrease is 10-30 per cent.

In mid-October the total crop was estimated at 50 per cent. or 60 per cent, of that of last year, representing a total of 210 (260) to 250 (300) million gallons, but possibly somewhat less, the decrease from the five-year average is about 40 per cent.

The present crop is distinctly below even those of the years from 1928 to 1930, though obtained from an area almost twice as large (75 per cent, greater) and it is necessary to go back to 1921 to find a unit-yield so small.

Quality is, on the other hand, good, alcoholic content is 1–1.5 degree above that of last year in Algiers, 0.5–1 degree higher in Constantine. Fermentation was generally carried out in fairly good conditions, though in September it was hindered by temperatures abnormally high for the district.

In the Bône district there has for the first time been an export of table grapes.

French Morocco: The scirocco in August aggravated the situation, increasing cryptogamic damage, particularly on the coast The loss is everywhere serious despite the effect of the young vines coming into bearing this year. Wine-making has been hindered by the bad quality of the grapes, between 18 and 20 lbs were often needed for a gallon of must (15-17 lbs for an American gallon). On the other hand weather was favourable to fermentation

Tunisia The vintage was favoured in August by the weather. Results confirm a production much below that of last year and the average, alcoholic content is lower than in preceding years. Wine-making was favoured initially by low temperatures but was later hampered by heat

OLIVES

Greece The latest unofficial estimate of oil production is less than that of last year owing to cryptogamic damage, especially in Crete, Corfu and Xanthe

Italy: Crop condition is generally fairly good. Fly has been important in some provinces and the weather has been rather unfavourable so that a small production is expected

Algeria: Production is on the whole very bad in consequence of the unfavourable weather at the beginning of the year, flowering and fruit formation were frequently defective, much fruit fell and the scirocco caused some damage in September. At the end of that month the crop was reckoned to be very small in Constantine; in Algiers the two leading olive–growing districts, Algiers and Tizi-Ouzou, were expected to give a production slightly below the mediocre one of 1933-34 (46,000 centals or 610,000 American gallons against 51,000 and 670,000); finally, production in Oran, though not more than 400,000 centals, is less than in the two preceding seasons (465,000 centals in 1935-36 and 434,000 in 1934-35)

Total Algerian production is thus very considerably below that of the last two seasons — 313,000 centals or 4,114,000 American gallons in 1935-36 and 353,000 centals (4,670,000 American gallons) in 1934-35 — and the five-year average of 375,000 centals (4,925,000 American gallons), it will probably approach that of 1933-34 — 201,000 centals (2,636,000 American gallons) — which was exceptionally low and represented an absolute minimum

According to the information of mid-October the decline is less than was expected and a production about half that of the preceding year or about 160,000 centals or 2,100,000 American gallons, a figure much the smallest ever recorded.

Tunisia: Olives benefited in August by showers and low temperatures, which checked leafing and allowed better development of the fruit. Though slightly improved, the crop remains small.

The weather favoured growth of the young branches, which should assure the 1937 crops.

LINSEED

The principal features of the current flax season as regards Europe (not including the U. S. S. R.) are a further extension of area, which in all the producing countries has for some years been in continuous progression, and the great variation in weather from one district to another.

The extension of the crop for seed is a result of the economic nationalism that has for some years characterized the policy of the various Governments and particularly of the increased industrial utilization of the crop. The data at present available show that while Estonia and Hungary have reduced their crop for seed with reference to 1935 and in the latter case even to the average, all the other European countries have continued to extend their crops. The most marked growth is that in Germany, where the area has almost doubled with respect to the already high figure of 1935 and which occupies the fourth rank amongst European linseed producers.

The provisional estimates of the 1936 crop in Europe are still few and in general reflect the great variation in weather during the season. On the whole the weather was not favourable, being generally dry in the north, rather variable in the centre and irregular, with excess of moisture, in the south. Poland, Germany, Belgium, France, the Netherlands, Romania and Italy, that is, almost all the leading European producers, have not yet intimated their production. The information available, however, and subsequently to be summarized confirms the impression that the crops were affected by the irregular weather; unit-yields of seed this season have been reduced, sometimes even neutralizing the effect of the increase on last year's area. For Poland, which is generally responsible for one-third of the total European linseed crop (not including the U.S.S.R.) there are still no estimates; crop condition at the time of harvest was below that at the same date last year and led to expectations of an average yield. In Germany the available information indicates a crop much larger than last season and distinctly above the average. In Belgium crop prospects were scarcely satisfactory, owing to the losses caused by unfavourable weather. For France it is estimated that the crop covers a wider area than last year, the internal market having been favourable at the time of sowing and government subventions and the limitation of beet sowings having played a part. However the wet, stormy weather that prevailed in the south of the flax area after spring hindered the crop, which promised a yield scarcely average. In the Netherlands crop condition at the time of harvest varied from district to district but on the whole promised a satisfactory unit-yield. The prospects in Romania and Italy are for a more or less average crop.

In the U. S. S. R. the crop has for some years been diminishing; the area planned for the current season is almost the same as last year but about 14 % below the average. To improve the crop the Government has decided to award premiums for quality and yield, on the basis prices fixed for deliveries to the State by *kolkhozi* and individuals. In this way the area sown to selected seed this year attained 1,560,000 acres, twice that of last year. A figure for production

Flax.

COUNTRIES	†) AREA 1936 — 1936/37	†) AREA 1935 — 1935/36	†) AREA Aver. 1930 to 1934 — 1930/31 to 1934/35	†) AREA % 1936 — 1936/37: 1935 — 1935/1936 = 100	†) AREA % 1936 — 1936/37: Average = 100	†) PRODUCTION 1936 — 1936/1937	†) PRODUCTION 1935 — 1935/1936	†) PRODUCTION Aver. 1930 to 1934 — 1930/31 to 1934/35	†) PRODUCTION 1936 — 1936/37	†) PRODUCTION 1935 — 1935/36	†) PRODUCTION Aver. 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
Fibre.													
Germany 1)	109	55	18	197.9	614.5	...	1,517	2) 468	...	151,652	2) 46,772	...	...
Austria 3)	4	5	6	94.7	74.1	63	58	85	6,349	5,798	8,539	109.5	74.4
Belgium	52	47	35	112.6	149 7	...	838	317	...	83,806	31,660	...	...
Bulgaria	8	6	1	142.0	551.8	...	8	3	...	786	336	...	...
Estonia	70	73	51	96.6	137.1	204	231	144	20,400	23,073	14,448	88.4	141.2
IrishFreeState	...	5	2	...	...	...	23	7	...	2,300	689	...	...
Finland 4)	12	12	10	102.9	123.9	...	39	32	...	3,946	3,236	...	...
France	...	82	44	...	...	...	479	247	...	47,885	24,652	...	...
N. Ireland	25	28	13	91.4	188 0	...	154	62	...	15,438	6,156	..	...
Hungary	9	6	5) 8	130.3	102.1	42	21	5) 27	4,239	2,125	5) 2,666	199.5	159.0
Italy	...	9	10	...	...	...	44	48	...	4,381	4,767	...	...
Latvia	167	168	105	99.6	159.0	398	547	310	39,838	54,697	30,975	72.8	128.6
Lithuania 4)	208	194	146	107.0	142.0	628	703	459	62,766	70,328	45,936	89.2	136.6
Netherlands	36	23	17	153.3	207.7	256	187	114	25,618	18,723	11,365	136.8	225.4
Poland	330	305	253	108.4	130.5	...	878	712	...	87,811	71,195	...	...
Romania	...	77	55	...	...	...	210	129	...	21,007	12,915	. .	...
Czechoslovak.	40	33	22	122 0	180.7	197	149	95	19,706	14,923	9,541	132.1	206.5
Yugoslavia	33	30	30	110.8	111.5	...	222	226	...	22,169	22,604	. .	...
U. S. S. R. 6)	7) 5,072	5,206	5,513	97.4	92.0	. .	12,125	11,322	...	1,212,546	1,132,197	...	...
Egypt	6	5	3	124 7	182.8	41	29	21	4,121	2,929	2,083	140.7	197.9
Linseed.													
									1,000 bushels of 56 pounds				
Germany	109	55	18	197.9	614.5	...	366	105	...	654	187	.	...
Austria	...	3	4	...	...	12	12	14	21	22	24	98.2	87.3
Belgium	52	47	35	112.6	149.7	...	218	165	...	389	294	...	...
Bulgaria	8	6	1	142.0	551.8	...	26	6	...	46	10	...	...
Estonia	70	73	51	96.6	137,1	...	207	161	...	369	288	...	...
France	...	82	44	...	...	...	...	204	...	...	364	...	. .
Hungary	16	24	5) 30	66 6	53.4	124	117	5) 141	221	210	5) 251	105.5	87.8
Italy	...	10	15	...	...	. .	49	78	. .	88	140	..	...
Latvia	167	168	105	99.6	159.0	355	454	299	633	811	533	78.1	118.8
Lithuania 4)	208	194	146	107 0	142.0	778	833	559	1,389	1,487	999	93.4	139.0
Netherlands	36	23	17	153.3	207.7	...	153	98	...	273	176	...	...
Poland	330	305	253	108.4	130.5	...	1,564	1,105	...	2,793	1,974	...	...
Romania	...	77	55	...	...	...	252	232	...	450	415	...	...
Czechoslovakia	40	33	22	122.0	180.7	134	126	71	239	225	127	106.2	187.7
U. S. S. R. 8)	9) 5,800	5,758	6,724	100.7	86.2	...	...	16,708	...	...	29,836	...	...
Canada	468	214	432	218.3	108 2	1,039	824	1,321	1,855	1,472	2,359	126 1	78.6
United States	1,698	2,014	2,107	84.3	80.6	3,528	7,909	6,440	6,300	14,123	11.501	44.6	54.8
India	3,402	3,410	3,118	99.8	109.1	8,602	9,408	8,714	15,360	16,800	15,560	91.4	98.7
Egypt	6	5	3	124.7	182.8	43	36	25	77	64	44	119.2	173.9
Eritrea	...	2	10) 4	...	...	...	13	10) 20	...	24	10) 36	...	...
French Moroc.	41	42	52	98.2	78.4	176	136	246	315	243	440	129.6	71.6
Argentina	11) 7,426	11) 6,573	11) 7,702	113.0	96.4	...	29,322	41,634	...	52,360	74,347	...	...
Uruguay	...	403	392	...	...	...	1,877	1,979	...	3,552	3,534	...	...

---

†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — 1) Production expressed in dry stalks (flax and straw). The corresponding figures in flax are as follows: 1935 — 30,331,000 lb.; average — 9,354,000 lb. — 2) Year 1933 and 1934. — 3) Production expressed in terms of airdried stalk. — 4) Flax and hemp. — 5) Year 1934. — 6) "Dolgunetz" variety. — 7) Area harvested at 1 September, representing 97 % of the area fixed by the Plan (5,241,000 acres). — 8) Total area (including that for flax). — 9) Total area according to the Plan. — 10) Average 1931 to 1934. — 11) Area sown.

is still lacking but there are grounds for believing that this year's crop has generally been favoured by the weather and will be larger than that of last year, estimated according to the plan at 16.8 million centals (29.9 million bushels). In this respect, however, it must be mentioned that the production of the U. S. S. R. has no significance for the international linseed trade, being almost entirely absorbed internally.

The crops in North America have this year been seriously compromised by the exceptional drought in spring and the severe heat in July and August. The last estimate of the United States crop, determined on 1 October did not bring any modification of the preceding month's figure and thus confirmed a very small production exceeding the disastrous crop of 1934, the smallest in the last forty years, by only 660,000 centals (1,180,000 bushels).

In Canada, despite the great extension of area by 118.3 % on last year and 8.2 % on the average, production remains 21.4 % smaller than the average, though 26.1 % larger than last year's. For the two North American countries total production of linseed in 1936 was 4,566,000 centals (8,153,000 bushels) and was thus 47.7 % smaller than the 8,733,000 (15,594,000) of 1935 and 41.2 % smaller than the average of 7,760,000 (13,858,000) in the five preceding years.

PRODUCTION AND PROSPECTS IN THE PRINCIPAL EXPORTING COUNTRIES.

In India the area sown this season was practically the same as last season, though 9.1 % above the average, but, owing to damage at harvesting, production was about 9 per cent. less than last year and 1.3 per cent. below the average. In Argentina, which is first among countries producing and exporting linseed, the weather up to the middle of September was generally favourable save in some parts of Córdoba and Entre-Rios, where there were complaints of lack of humidity and, in the latter, of locust attacks. At the beginning of October the need for rains was almost general but, according to a cable dated 22 October from the Ministry of Agriculture at Buenos Aires, beneficial rains had fallen throughout the territory and crop condition was considered good. However, the results of the crops are still dependent on the weather in the last two months of spring, which represent the most critical period in the growth cycle of Argentine crops. Assuming a normal season and excluding all other risks and on the basis of the sown area exceeding by 13 per cent. that of last year but remaining about 4 per cent. below the average, Argentine production may be forecast as distinctly above the poor crop of last season, which was 29.3 million centals (52.4 million bushels), and may be about the average of the five preceding years, which was 41.7 (74.4) million, or even exceed it by 2 (3 ½) million. Uruguay has not yet communicated the estimate of area devoted to linseed this year; in commercial circles, however, a slight extension with respect to last year's area and a good average crop are expected. Finally, French Morocco, on an area almost equal to that of last year, has obtained a much larger crop (29.6 per cent.) than the small one of 1935 but 28.4 per cent. below the average. In short, the present linseed season may be summed up as follows. The crop has been satisfactory in India and French Morocco; it is distinctly small in North America and it varies from average to good in Europe, while a good average crop is expected in Argentina and Uruguay.

A. DI FULVIO

FLAX

Irish Free State: Flax yields are expected to be below those of last year.

France: According to the enquiry made by the "Association générale des producteurs de lin", the area under flax this year would be 97,000 acres, against 82,500 in 1935 and 43,500 on the average of the five years ending 1934.

U. S. S. R.: Retting is almost at an end. On 5 October the kolkhozi had removed the macerated stalks from 4,389,000 acres, 86 per cent. of the area harvested, against 67 per cent, at the corresponding date last year.

Argentina: The last monthly report of the Office of Rural Economy and Statistics of the Ministry of Agriculture, published on 18 September, contains the following information on crop condition.

Buenos Aires. — Development varies from district to district. In the south rain was wanted while elsewhere crop condition was excellent

Santa Fé. — Sowings were carried out in good conditions. Germination of wheat was normal but growth varies from district to district, being forward in the north, where 20 per cent. of the crop was in flower, normal in the centre and backward in the north, where rains were wanted.

Córdoba. — Condition varied from good in the east to unsatisfactory in the remainder of the province, owing to drought and frosts In some districts locusts were reported.

Entre Rios. — Save in the southeast the crop was in a precarious condition, due to lack of rain. Locusts were reported.

Santiago del Estero. — Drought caused appreciable damage and crops were irregular and ill developed.

(Telegram of 22 October): There were general rains in all parts of the country. Condition of the flaxseed crop is now considered good.

COTTON

Greece: According to the Greek Cotton Institute weather from mid-August to mid-September considerably worsened. Sudden changes in temperature, especially during the night, caused heavy shedding of bolls, especially on the mainland and in the Peloponnese. In some districts many cases of disease are also reported. The previous very optimistic first forecast has consequently been reduced by about 9 per cent.

U. S. S. R.: Ripening is forward this year by about a week in comparison with last year and the dry sunny weather that continued in the leading areas of production in Central Asia from 15 September to 15 October, favoured picking. The Government has decided that 1,878,000 metric tons of unginned cotton must be delivered. Picking is to terminate by 1 December and delivery to the factories by 10 December at latest. On 5 October the quantity of unginned cotton delivered was 43 per cent. of the plan and about 150,000 tons above the corresponding deliveries of last year.

Cotton.

Countries	Area					Production of ginned cotton							
	1936/37	1935/36	Average 1930/31 to 1934/35	% 1936/37		1936/1937	1935/1936	Average 1930/31 to 1934/35	1936/1937	1935/1936	Average 1930/31 to 1934/35	% 1936/37	
				1935/1936 = 100	Average = 100							1935/1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bales of 478 lb				
Greece 1)	2) 176	110	62	159 5	284.6	2) 436	234	115	2) 91	49	24	186.5	380.5
Yugoslavia 1)	5	4	3	136.1	175.4	...	5	2	...	1	1	...	...
U. S. S. R.	3)4,932	6,827	4,883	102.2	101.0	4)13,190	11,618	8,480	4)2,759	2,431	1,774	113.5	155.5
United States 5)	29,720	27,335	34,658	108.7	85.8	55,491	50,852	63,777	11,609	10,638	13,343	109.1	87.0
China	6)8,357	5,318	5,823	157.1	143.5	6)21,830	10,853	11,806	6)4,567	2,270	2,470	201.1	184.9
India 7)	20,989	22,114	19,760	94.9	106.2	—	—	—	—	—	—	—	—
Egypt	1,781	1,733	1,743	102 8	102 2	6) 9,309	8,454	7,076	6)1,947	1,769	1,480	110.1	131.6
Nyasaland	—	—	—	—	—	48	78	27	10	16	6	61.7	180.5

1) Area sown — 2) Unofficial estimate — 3) Area sown up to 15 May, 1936; the area fixed by the Plan amounts to 4,979,000 acres — 4) Production as calculated in the Plan — 5) See *Summary of Government's Cotton Reports.* — 6) First estimate. — 7) Second estimate

In Tadzhikistan the delivery plan has been realised to 67.2 per cent, in Turkmenistan to 60.1 per cent., in Uzbekistan to 44.7 per cent, in Azerbaidzhan and in Ukraina to 18.4 per cent.

Argentina: Preparation of the land was in progress in September in the leading centres of production except Santa Fé, Santiago del Estero and some districts of the National Territory of the Chaco, where hardness of the soil was an obstacle. A considerable increase in area on that of last year, when the figure was already a maximum, is confirmed.

United States (Report for the week ended 23 September): Picking was increasing in southern New Mexico and Arizona and cool nights have benefited the late-planted crop. In Georgia the weather has been favourable for harvesting, half being completed, though the crop was still blooming in the north-eastern portions of the State. In Tennessee and Missouri picking was well advanced, and in Alabama picking was nearly completed in the southern three-quarters of the State, while the staple was good elsewhere. Bolls were opening rapidly in Mississippi and fair to good progress has been made with picking. Late-planted cotton was opening well up to the northward portions of the belt. Picking was nearly finished in Oklahoma. Yields were light, rains having damaged the staple. Rains stopped picking over most of Texas and damaged open bolls in the southern and central portions of the State. Reports from North Carolina and Virginia also mention storm damage.

(Report for the week ended 30 September): The temperatures ranged from decidedly below normal in the north-west of the cotton belt to above normal in the south-east. Rainfall was heavy in the western portion of the belt and in some of the north and central districts, but was generally light elsewhere. Good progress was made with picking and ginning in the Mississippi Valley and eastward, but frequent heavy rains much delayed picking and ginning in the western part of the belt. In Texas the harvest was about completed in the South and was well advanced elsewhere but the heavy rain damaged open cotton considerably in large sections of the central and northern parts of the State. In Oklahoma poor progress was made with picking, although it was mostly completed, while in many localities heavy rains damaged grade considerably.

(Comments relating to the crop report on 1 October). During the month of September prospects declined in Texas, but this loss was more than offset by improvement elsewhere. The drought which had affected the crop in all States from Mississippi to the West was broken in September. The rains came too late to materially help cotton in Texas and Oklahoma, but in States adjoining the Mississippi River the crop greatly improved. In these States the rains stopped premature opening of bolls and the resulting increases in the prospective yields were due to favourable weather. Continued improvement has been made in eastern parts of the belt since 1 September and plants made rapid progress. In North Georgia, however, the crop is still subject to damage from early frost. The crop has opened rapidly and at present there is a larger than usual amount of open cotton exposed to possible loss from storms.

(Report for the week ending 6 October): In the Cotton Belt prevailing temperatures for the week varied from decidedly below normal in the West to above normal in the East. Rainfall in general, was locally heavy in the eastern States, but fair weather was the rule in central and western districts. Conditions were generally favourable for harvest, except in some eastern sections, where too much rain retarded opening, delayed picking, and caused some damage to open staple. Generally, picking and ginning made fair to good progress, especially during the latter part of the

Summary of Government's Cotton Reports, by cotton season:

	Provisional estimates for dates indicated 1936/37	Final estimates		Percent 1936/37	
		1935/36	Average 1930/31 to 1934/35	1935/36 = 100	Aver. = 100
Report referred to 1 July					
Area in cultivation (acres)	30,621,000	27,888,000	37,408,000	109.8	81.9
Report referred to 1 August					
Area left for harvest (acres)	1) 29,024,000	2) 27,335,000	3) 34,658,000	109.5	86.3
Crop condition (per cent of normal)	72.3	73.6	4) 68.0	—	—
Production 5)	12,481,000	10,638,000	13,343,000	117.3	93.5
Yield of lint per acre, in lb.	190.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 August 6)	41,130	94,346	85,520	43.6	48.1
Cotton ginned to 16 August 6)	208,307	316,930	345,824	65.7	60.2
Report referred to 1 September.					
Area left for harvest (acres)	7) 29,720,000	2) 27,335,000	3) 34,658,000	108.7	85.8
Crop condition (per cent. of normal)	50.1	64.5	4) 58.7	—	—
Production 5)	11,121,000	10,638,000	13,343,000	104.5	83.4
Yield of lint per acre, in lb.	179.2	186.3	4) 178.2	96.2	100.6
Cotton ginned to 1 September 6)	1,373,868	1,135,090	1,221,961	121.0	112.4
Cotton ginned to 16 September 6)	3,707,142	2,315,831	2,941,273	160.1	126.0
Report referred to 1 October:					
Crop condition (per cent. of normal)	61.8	64.0	4) 58.1	—	—
Production 5)	11,609,000	10,638,000	13,343,000	109.1	87.0
Yield of lint per acre, in lb.	186.9	186.3	4) 178.2	100.3	104.9
Cotton ginned to 1 October 6)	6,030,940	4,232,068	5,484,000	142.5	110.0
Cotton ginned to 18 October 6)	8,568,900	6,590,402	8,282,604	130.0	103.4

1) Area in cultivation on 1 July, less the ten-year, 1926-35, average abandonment, about 2.3 per cent. — 2) Area actually harvested; per cent. of abandonment about 2.0. — 3) Area actually harvested; the per cent. of abandonment, about 1.7, does not take into account about 10,495,000 acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts. — 4) Ten-year, 1925-34, average. — 5) In bales of 478 lb. net weight and exclusive of linters. — 6) In running bales, counting round bales as half-bales and exclusive of linters — 7) Area in cultivation on 1 July, less 2.9 per cent. of abandonment.

week. In central and western portions this work is now well along. In Texas, the harvest has made a fair advance during the last few days; the previous recent rains damaged open staple, but have improved late plants and there is now a prospect of some top crop. Lowland districts are still too wet. In Oklahoma picking was nearly completed, and there was much snapping, with some staple damaged by the recent rains. In the central States of the Belt conditions were favourable for harvesting.

(Report for the week ended 13 October)· Temperatures averaged considerably cooler than normal in the western Cotton Belt, and warmer than normal in the eastern States, where there were no damaging temperatures. Much of the week was rainy and wet in most sections, picking and ginning being retarded rather generally, with more or less damage to staple. In Texas the crop was nearly all picked in all but the north-western portion of the State, except for light top crops. In Oklahoma picking made slow progress, but was completed in many places where staple was damaged. In central districts the first part of the week was decidedly unfavorable for picking, but good progress was reported for the last couple of days. In the eastern States rainfall was mostly heavy and unfavourable. Late cotton opened slowly in the North-East, and picking made generally good progress from Georgia to Virginia, with considerable damage by rain to open bolls.

India: According to a cable received on 12 October the area under cotton in the Punjab is 3,490,000 acres against 2,912,000 in 1935-36 and 2,330,000 on the average of the five years ending 1934-35; percentages, 119 8 and 149 8 Crop condition was 97 per cent of the normal.

Algeria: Production is estimated at 5,500 centals unginned against the insignificant figure of 291 (61 bales) of lint last year and nil in 1934. The figure confirms the revival of cotton cultivation, which had attained a maximum of 37,000 centals (8,000 bales) of lint in 1920 and had receded immediately after and disappeared in 1934.

Egypt: Cotton ginned up to the end of September, in bales of 478 lb. net weight:

Varieties	1936	1935	1934	1933	1932	1931	1930
Sakellaridis	5,550	6,940	8,070	1,080	5,730	4,230	8,430
Other varieties above							
1 3/8″	52 790	20,720	22,710	3,200	5 570	71,440	146,650
1 1/4″	2,440	2,400	2,880	1,090	3,130		
1 1/8″	316,080	179,240	197,860	128,700	73,070		
Total . . .	*376,860*	*206,390*	*231,620*	*134,070*	*86,500*	*75,670*	*155,080*
Scarto	5,560	2,690	3,120	1,170	1,270	1,330	2,060
Total production (including *Scarto*)	*) 1,947,400	1,768,600	1,565,600	1,770,900	1,027,000	1,317,300	1,714,900

*) First estimate.

According to the first estimate, total production is distributed as follows, in thousands of bales of 478 lb. net weight:

	1936	1935	1934	1933	1932
	(First estimate)		(Final estimates)		
Long staple: above 1 3/8″	634	550	460	442	364
(including *Sakellaridis*)	(116)	(187)	(208)	(239)	(252)
Long-medium staple: above 1 1/4″ . .	38	43	44	76	73
Medium staple: above 1 1/8″	1,231	1,135	1,028	1,225	567
Scarto	44	40	34	34	23
Total . . .	*1,947*	*1,769*	*1,566*	*1,777*	*1,027*

Nigeria: In August the distribution of cotton seed had already been completed and planting was being finished.

Uganda: The average planted to the end of August was estimated to be 1,306,000 acres, subject to adjustment when the average plot size has been determined. This figure is 139,000 acres (12 per cent.) in excess of the acreage at the same date in 1935, and, as rains were experienced at the beginning of September, it seemed probable that, with September plantings, the final total would also show an increase. The early-sown cotton was in good condition. Later plantings were healthy but had germinated under dry conditions. There was little disease. In general, the crop condition was average.

HEMP

France: Weather from mid-September to mid-October favoured pulling.

Hemp.

COUNTRIES	Area 1936	Area 1935	Area Average 1930 to 1934	Area % 1936: 1935 = 100	Area % 1936: Average = 100	Production 1936	Production 1935	Production Average 1930 to 1934	Production % 1936: 1935 = 100	Production % 1936: Average = 100
	1,000 acres					1,000 pounds				
Fibre.										
Germany 1)	14	9	1	157.7	1,820.0	—	—	—	—	—
Austria 2)	1	1	1	100.0	100.9	1,389	1,367	1,516	101.6	91.6
Bulgaria	19	16	11	114.5	166.4	...	7,495	4,173	...	...
France	...	8	8	...	...	...	8,262	7,342	...	..
Italy	...	166	157	...	...	...	142,077	140,905	...	...
Poland	83	84	79	99.5	105.8	.	26,681	29,215	..	..
Romania	...	115	110		...	.	50,090	53,240	...	...
Czechoslovakia	18	18	18	100.5	99.5	11,735	12,689	11,259	92.5	104.2
Yugoslavia	131	109	80	120.7	164.9	...	82,763	62,507	...	...
U. S. S. R.	..	1,495	1,961	...	...	...	...	426,287	...	...
Syria & Lebanon	...	12	5	...	...	..	7,035	2,630	...	...
Hempseed.										
Austria	...	3)	3)	...	...	1	1	1	112.5	80.6
Bulgaria	19	16	11	114.5	166.4	...	5,325	3,155	...	...
France	...	8	8	...	...	...	...	2,044	...	...
Poland	83	84	79	99.5	105.8	...	45,070	39,663	...	...
Romania	...	115	110	...	...	...	43,030	40,219	...	...
Czechoslovakia	18	18	18	100.5	99.5	7,580	8,509	7,484	89.1	101.3

1) Hemp and other textile plants — 2) Production expressed in terms of air-dried stalks. — 3) Area less than 500 acres.

HOPS

Hungary: Toward 6 October harvesting was completed and drying is in progress.

Hops.

COUNTRIES	Area 1936	Area 1935	Area Average 1930 to 1934	Area % 1936: 1933 = 100	Area % 1936: Aver-age = 100	Production 1936	Production 1935	Production Average 1930 to 1934	Production % 1936: 1935 = 100	Production % 1936: Aver-age = 100
	1,000 acres					1,000 pounds				
Germany	25	25	25	99 3	100 3		18,941	16,370	...	...
Austria	. .	..	1)					87	. .	...
Belgium	2	2	2	106 8	127 0		2 535	2,009	. .	...
France	.	5	5				5,098	3,637	...	...
Hungary		1)	1)				154	196	..	...
Engl and Wales	18	18	18	100 3	100 6		27 810	24,304	.	...
Poland	8	8	2) 6	109 3	144 9		3 732	2) 3,050	..	...
Romania		1)	1)			.	52	49		
Czechoslovakia	29	29	33	100 6	89 3	27,558	15,432	21,104	187 6	130 6
Yugoslavia	7	7	6	104 2	123 2		4 170	3,116	..	...
—										
Canada	.	1	1				1 766	1 214		
United States	31	39	26	79 5	119 2	23 400	47,746	31,506	49 0	74 1

1) Area under 500 acres — 2) Average 1932 to 1934

TOBACCO

Greece: According to the Office for the Defence of Greek Tobacco the large extension of area encouraged by the recent revival of exports and the rather favourable weather of August and the first half of September lead to expectations of a very large crop almost on pre-crisis level The frequent rain and hail, however, prejudiced quality, which is not uniform Ripening, gathering and drying, especially of early varieties, were hindered in September by stormy weather

Hungary Toward 6 October harvesting was completed Arrangement of the leaves for drying was in progress.

Algeria: The crop is very irregular both in quality and in quantity. In Algiers it is considerably smaller especially on the coasts, where drought has been serious, quality, however, is satisfactory though the scirocco damage of September interfered with marketing On the other hand in Constantine yields have been quite high, the bad weather, however, caused damage during drying in the open air and the average quality of the dried leaves was reduced fairly considerably. According to information received in mid-October the crop is on the whole average.

Nyasaland: In August the tobacco nurseries were being prepared for planting.

Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1931	
				1935 = 100	Average = 100				1935 = 100	Average = 100
	1,000 acres					1,000 pounds				
*Germany 1)	32	31	27	100.7	117.3	...	76,897	60,305	...	...
*Belgium	7	8	7	85.1	97.7	...	17,078	14,777	...	...
Bulgaria	2) 99	85	67	116.5	146.5	2) 77,162	60,684	53,527	127.2	144.2
Greece	280	198	195	141.3	143.5	147,013	101,550	103,617	144.8	141.9
Hungary	35	38	53	92.9	65.7	44,720	47,269	67,095	94.6	66.7
*Poland	...	13	12	..	..	...	24,260	16,139	...	...
*Rumania	2) 37	44	40	83.4	92.7	...	28,738	24,082	...	...
*Czechoslovakia	24	25	23	98.1	105.1	...	27,806	29,269	...	...
*Yugoslavia	46	31	39	149.6	120.2	...	20,390	26,141	...	...
*U.S.S.R.	...	487	459	..	...	...	...	340,807	...	...
*Canada	...	47	48	..	...	...	54,473	45,150	...	...
United States	1,472	1,437	1,706	102.4	86.3	1,152,000	1,296,810	1,336,559	88.8	86.2
Japan	87	87	86	100.7	101.1	143,169	149,055	146,039	96.1	98.0
*Palestine	...	...	4	..	...	...	...	1,528	..	...
*Syria and Lebanon	...	9	14		...	...	4,144	7,707	...	...
Turkey	2) 148	145	127	102.3	116.4	2) 99,208	79,376	82,631	125.0	120.1
*Algeria	54	57	54	95.7	99.9	...	41,648	40,395	...	...
TOTALS	**2,121**	**1,990**	**2,234**	**106.6**	**94.8**	**1,663,272**	**1,734,744**	**1,789,468**	**95.9**	**93.0**

* Countries not including in the totals — 1) Production for sale — 2) Unofficial data

OTHER PRODUCTS

Cacao.

Gold Coast and British Togoland: 1936-37 MAJOR CROP. — Throughout the cacao areas in July and August the weather was abnormally dry, with dull skies, and accompanied by cold winds, less rain falling in August than for many years. It was expected that the crop would be affected but it was not yet possible to say to what extent. However, it may be noted that, though during the 1932-33 season there was a similar lack of rainfall, the total effect on yield was not great, as was proved by the large major crop subsequently harvested.

In August ripe pods might be seen in all districts. Clearing in preparation for the first main picking had been completed on most farms and harvesting had already commenced in a number of places.

The usual pod counts to ascertain the development were made at the end of August in 11 plots in Ashanti, 2 in the Western Province, 12 in the Central Province, 14 in the Eastern Province and 3 in the Trans-Volta area. From these 42 plots the following average percentages were obtained:

	End August 1936	End August 1935
Ripe pods	8.2	3.3
Green but fully grown	16.0	21.4
Three-parts grown	20.2	29.6
Half-grown	19.7	21.6
Quarter-grown	29.1	22.0
Small	6.8	2.1
Flowers	very few	few

The current figures compared with those of last year give no indication that the smaller pods have fallen off as a result of the drought, although this has been reported by some observers. The total number of pods on the trees, taking in all sizes on these 42 plots, was 33,370 in 1936 as compared with 43,500 in 1935, a reduction of over 23 per cent. More pods had already been harvested from the plots this season, but the exact figures are available only from 16 key plots. On the latter plots about 8 per cent. of the total pods had been harvested at the end of August whereas last year no harvesting had taken place. Using the figures for the key plots as a basis, therefore, the net reduction in yield per acre this year is about 15 per cent.

Crop reports for August in the various parts of the country were as follows:

Ashanti. — Harvesting was in progress but cold weather hindered efficient fermentation. The effect of drought was apparent in the old farms and lower yields were expected but in the young farms the crop appeared to be normal and flowers were still appearing in localized areas.

Western Province. — Small lots had been harvested but the first main picking had not yet been taken and no movement of major crop beans was reported by the end of the month.

Central Province. — Little major crop had been harvested. In the Oda and Cape Coast-Saltpond districts the weather adversely affected flowering and pod setting but in the Winneba district the crop appeared to be normal.

Eastern Province. — Some harvesting had taken place in Nsawàm-Kibi and Kwahu. The crop in the younger farms and in those in low-lying situations was good but on the hills the tail end of the crop had been affected.

Trans-Volta. — Owing to the prolonged dry weather many farms on the hills were adversely affected and some premature ripening took place. On the average, however, the trees appeared to be carrying a good crop. In the north new areas were coming into bearing and the total crop was expected to be larger than last year.

MAJOR CROP ESTIMATE. — The 1936-37 major crop had been provisionally estimated at 582 million pounds (last year's estimate on the some date being 526 million pounds) but by the end of August it was considered unlikely that this estimate would be realized, but the effect on yield of inadequate rainfall may not be as great as was feared as the normal relative humidity was maintained A revised estimate was not yet given as it was anticipated that weather conditions during September would have a considerable effect on the total production.

QUALITY. — The mean purity of the beans was 84.3 per cent The average size was 125.7 per 14 cubic inches, or 103 3 per 4 ounces, while measured in millimetres it was 22.2 × 12.1 × 6.8.

MOVEMENT. — The total exports for the eleven months October 1935 to August 1936 from the ports and the Eastern Frontier amounted to 625 million pounds, a record figure, as compared with 521 for the same period of last season. Crop movement in August was as follows:—

	August 1936	August 1935
	million pounds	
Railway offloadings, Takoradi	5.3	6.7
Exports:		
Takoradi	4.8	14.1
Accra	19.9	9.6
Other ports	12.0	3.6
All ports	*36.7*	*27.3*

Tea.

India: In North India, weather conditions were generally seasonable during the month of August and crop prospects were considered good.

In South India, weather was not very favourable early in August but improved towards the end of the month. Crop prospects were generally good.

In North India statistics to the end of August recorded an increase of 6,153,600 lb. as compared with the outturn to the same date last year.

In South India, the outturn to the end of August was 3.76 per cent, behind that to the same date last year.

French Indo-China: In Tonkin pickings were average in August on unpruned plantings, heavy on pruned. Picking began in some provinces of central Annam in view of the import of green and black tea.

Nyasaland: It was expected in August that tea exports in 1936 would reach 7,500,000 pounds as compared with 6,043,000 in 1935 and 2,876,000 on the average of the preceding five years. Percentages: 124 and 261.

Coffee.

Brazil: According to the National Coffee Department the total quantity of coffee destroyed from 1931 to the end of September 1936 was 51,190,000 centals, of which about 855,000 were destroyed in September.

Kenya: In August early coffee picking progressed under favourable conditions.

Tanganyika: In August dry weather conditions continued in most districts but heavy unseasonal rains were recently reported in the Kilimanjaro and Tanga areas. In the Arusha and Mbeya districts the coffee crops were expected to be below those of last year; Bukoba coffee exports to the end of July were nearly 50 per cent. lower in volume than in 1935.

Groundnuts.

India (Telegram of 20 October): According to the second estimate the area cultivated to groundnuts this year is about 5,977,000 acres against 4,736,000 in 1935-36 and 4,879,000 on the average of the five years ending 1934-35; percentages 126.2 and 122.5.

French Indo-China: The crop was good in North and Central Annam. Vegetation was good in South Annam at the end of August.

Nigeria: It was reported in August that in the North nearly all the last season's crop had been railed.

Colza and sesame.

Hungary: Toward 6 October winter colza had sprouted regularly and was developing satisfactorily

Romania: At the beginning of October sowing of winter colza had been begun here and there.

Sericulture.

Czechoslovakia: Production of cocoons this year is about 20,900 lb. against 10,000 lb. in 1935 and 36,400 lb. on the average of the five years ending 1934; percentages 209.5 and 57.5.

French Indo-China: Flooding occurred in some sectors of Tonkin and foliage was rendered unusable by the clay; in the uninundated sectors vegetation was satisfactory at the end of August. In Annam the trees gave a large foliage in August, allowing fairly large rearings to be undertaken, many of which were successful.

Japan: According to the most recent estimate the eggs for summer-autumn hatching this year are about 2,826,000 ounces against 2,883,000 in 1935 and 3,220,000 on the average of the five years ending 1934; percentages 98.0 and 87.8. The corresponding production of cocoons is estimated at about 316,534,000 pounds against 313,255,000 and 376,677,000, percentages 101.0 and 84.0.

FODDER CROPS

Germany: The following are the figures of production of the chief fodder crops in 1936 compared with the corresponding statistics of 1935 and the average of the preceding five years —

Crops		1936	1935	Average 1930-34	% 1936	
					1935 = 100	Average = 100
Clover	(000 centals)	205,668	158,300	196,432	129.9	104.7
	(000 sh. tons)	10,283	7,915	9,821		
Alfalfa	(000 centals)	63,485	51,454	42,764	123.4	148.5
	(000 sh tons)	3,174	2,573	2,138		
Mangels	(000 centals)	762,037	765,254	702,112	99.6	108.5
	(000 sh tons)	38,101	38,262	35,105		
Permanent meadows .	(000 centals)	632,306	521,769	511,701	121.2	123.5
	(000 sh. tons)	31,615	26,088	25,589		
of which:						
Irrigated meadows . .	(000 centals)	*34,046*	*33,051*	*43,529*	103.0	78.2
	(000 sh tons)	*1,702*	*1,652*	*2,176*		
Unirrigated meadows .	(000 centals)	*598,259*	*488,718*	*468,262*	122.4	127.8
	(000 sh tons)	*29,913*	*24,436*	*23,413*		

Belgium: Clover and alfalfa are luxuriant. The second cut has been very abundant, Young clover sown in winter-barley has given a crop equivalent to an aftermath. The second cut of hay was abundant and was brought in in very good conditions.

Irish Free State: The first half of September was broken and wet and the second half cold and dry with night frosts and occasional rain. Pastures grew out well and grass will be fairly plentiful during the early winter

France: The fine weather from mid-September to mid-October, with only a few storms, was fairly favourable to meadows, pastures and aftermath as well as to early autumn sowings; toward the end of that period, however, complaints of drought became common and in some districts storms compromised the bringing in of the aftermath. Fodder cereals were a good crop in the west, especially in Poitou and Vendée, alfalfa was very bad and clover fairly good.

Great Britain and Northern Ireland: Generally the weather during September was unsettled. Thunderstorms followed a period of heavy rains, and fog and mist were prevalent during the middle part of the month. While the temperature during most

The condition of fodder crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 Octobes 1936			1 September 1936			1 Octobre 1935		
	a)	*b)*	*c)*	*a)*	*b)*	*c)*	*a)*	*b)*	*c)*
CLOVER:									
Germany	2.4	—	—	2.4	—	—	—	—	3.1
Austria 1)	1.7	—	—	1 9	—	—	—	—	3.1
Netherlands	2) 71	—	—	2) 71	—	—	—	—	2) 60
ALFALFA:									
Germany	2.5	—	—	2 2	—	—	2.8	—	—
Austria	2 2	—	—	2 2	—	—	—	—	3.4
Netherlands 3)	2) 72	—	—	—	—	—	2) 65	—	—
MANGELS:									
Germany	2 5	—	—	2 4	—	—	2.9	—	—
Austria	2 4	—	—	2 1	—	—	—	3.0	—
Netherlands	2) 72	—	—	2) 71	—	—	—	—	2) 65
TEMPORARY MEADOWS:									
Austria 4)	1 8	—	—	1.8	—	—	—	—	3.2
Sweden	105	—	—	105	—	—	107	—	—
PERMANENT MEADOWS:									
Germany:									
irrigated meadows	2 3	—	—	2.2	—	—	2 8	—	—
other meadows	2 5	—	—	2 4	—	—	—	—	3.2
Austria	1 8	—	—	1.8	—	—	—	—	3.3
Sweden 5)	—	100	—	103	—	—	110	—	—
PASTURES:									
Germany	2.6	—	—	2 5	—	—	—	—	3.2
Austria	2 3	—	—	2 3	—	—	—	3 0	—
Netherlands	2) 78	—	—	2) 79	—	—	—	—	2) 57

a) Above the average. — *b)* Average. — *c)* Below the average. — *d)* Excellent — *e)* Good — *f)* Average. — *g)* Bad — †) See explanation of the various systems on page 693. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips — 4) Kleegrass — 5) Meadows for hay

of the month was higher than average, the deficiency of sunshine created a new low record. Towards the end of the month local groundfrosts prevailed at night.

Owing to the wet season, cleaning of root crops has been hindered and weeds are very prevalent. Rather more second cuts of clover have been taken for hay this season and many of these crops have been secured in fair condition.

Mangels are a vigorous and healthy crop. Roots filled out moderately well in September. The total yield is at present forecast at 98,020,000 centals (4,901,000 short tons) as compared with 102,280,000 centals (5,114,000 short tons) in 1935 and an average of 103,810,000 centals (5,191,000 short tons) in the five years 1930 to 1934. Turnips and swedes also grew well in September and the bulbs are of fair size. Production is estimated at 116,170,000 centals (5,808,000 short tons) against 102,820,000 centals (5,141,000) in 1935 and an average of 111,600,000 centals (5,580,000 short tons)

In Scotland the fodder crops benefited greatly during September, the yield prospects for root crops in particular improving

Hungary: In consequence of the rains mangels are well developed. Toward 6 October lifting had begun here and there. Production of maize and moha for green fodder on stubble has been satisfactory. The second and subsequent cuts of permanent meadows have also given good results. Pastures have still a good appearance due to the rains and provide adequate feed.

Italy: The abundant rains favoured vegetation and sowings are well developed. Hay supplies are abundant.

Lithuania: A crop of mangels, larger than of last year and of higher quality is expected.

Norway: Production of the principal fodder crops is as follows:

		1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
Hay from temporary meadows .	(000 centals)	44,793	47,685	46,970	93.9	95.4
	(000 sh tons)	2,240	2,384	2,348		
Hay from permanent meadows .	(000 centals)	7,056	9,193	8,870	76.8	79.5
	(000 sh. tons)	353	460	443		
Turnips	(000 centals)	12,385	11,512	12,046	107.6	102.8
	(000 sh. tons)	619	576	602		
Kohl-rabi	(000 centals)	4,814	4,064	3,508	118.4	137.2
	(000 sh. tons)	241	203	175		

Netherlands: Toward mid-September condition of mangels was good, that of kohlrabi and spurrey was fairly good. As a result of the abundant rains clover developed very well and its unit-yield was satisfactory, like that of alfalfa. Condition of meadows was excellent and fodder supplies the largest of recent years.

Sweden: Aftermath on temporary meadows was abundant and pasture well covered. Hay was of good quality. Fodder roots are generally in good condition

Production of temporary meadows in 1936 is estimated at 103,044,000 centals (5,152,000 short tons) against 109,195,000 (5,460,000) in 1935 and 106,784,000 (5,339,000) on the average, percentages of 94.4 and 96.5 respectively. The corresponding figures for hay from permanent meadows are 13,933,000 (697,000), 13,426,000 (671,000) and 12,232,000 (612,000); 103.8 % and 113.9 %.

Argentina: Condition of fodder cereals is average to bad, following on drought, frosts and excessive grazing.

Canada: The area and production of turnips, fodder maize and alfalfa in 1935 and comparative figures for 1935 and for the five-year period 1930-34 are as follows:

Area (thousand acres).

	1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
Turnips	182	185	183	98.3	99.4
Fodder maize	409	481	401	85.1	102.1
Alfalfa	854	762	670	112.0	126.4

Production.

	thousand centals			thousand short tons			% 1936	
	1936	1935	Average 1930-34	1936	1935	Average 1930-34	1935 = 100	Average = 100
Turnips.	37,679	35,110	36,670	1,884	1,755	1,834	107.3	102.7
Fodder maize . . .	60,600	81,560	64,619	3,030	4,078	3,231	74.3	93.8
Alfalfa	38,440	39,174	31,088	1,922	1,959	1,554	98.1	123.7

LIVE STOCK AND DERIVATIVES

The pig crop in Germany.

The results of the latest enumeration of pigs conducted on 4 September 1936 are set out below together with the figures for the same periods in the four preceding years. No enumeration of pigs was made in September 1933.

Classification	4 September 1936	4 September 1935 1)	4 September 1934 1)	1 September 1932 1)	1 September 1931 1)
Sucking pigs under 8 weeks old	*6,649,072*	*5,752,563*	*6,347,585*	*6,325,969*	*6,804,483*
Young pigs from 8 weeks to 6 months old	*11,100,172*	*9,683,422*	*10,594,579*	*10,340,756*	*10,980,002*
Pigs from 6 months to 1 year old	*6,229,260*	*5,271,080*	*6,071,615*	*5,434,528*	*5,391,153*
of which:					
Boars for service	44,700	42,128	42,343	45,929	51,221
Sows for breeding (total)	577,631	529,288	470,470	516,607	569,032
Sows covered	(311,471)	(288,205)	(228,991)	(254,829)	(275,554)
Other swine	5,606,929	4,699,664	5,558,802	4,871,992	4,770,900
Pigs 1 year old and over	*2,028,658*	*1,879,712*	*2,033,190*	*2,074,556*	*2,172,665*
of which:					
Boars for service	66,050	66,730	71,947	75,391	73,374
Sows for breeding (total)	1,588,587	1,409,827	1,483,347	1,559,316	1,660,619
Sows covered	(857,490)	(774,519)	(768,199)	(831,507)	(901,873
Other swine	374,021	403,155	477,896	439,849	438,672
Total	**26,007,162**	**22,686,777**	**25,046.969**	**24,175,809**	**25,348,303**

---

1) Not including Saar territory.

Slaughterings in Germany.

The followings table shows the numbers of animals slaughtered and the quantity of meat produced during the second quarter of 1936 and those of the first half of the same year. These data are compared with the corresponding figures of the three preceding years. The figures of the first quarter of 1936 are published in Monthly Crop Report of May 1936, page 366.

CATEGORIES	1936				Total January-June			
	April	May	June	Total April-June	1936	1935 1)	1934 2)	1933 2)
Number of animals slaughtered.								
Steers	21,656	19,941	14,963	56,560	129,724	164,426	177,011	151,606
Bulls	31,342	34,345	31,784	97,471	182,131	233,451	264,301	265,687
Cows	138,139	129,658	114,783	382,580	847,627	1,014,684	832,477	745,655
Young animals over 3 months	57,962	53,882	51,543	163,387	353,004	532,659	517,111	488,388
Heifers under 3 months	439,258	418,328	375,461	1,233,047	2,356,744	2,656,472	2,536,386	2,231,548
Total cattle	*688,357*	*656,154*	*588,534*	*1,933,045*	*3,869,230*	*4,601,692*	*4,327,286*	*3,882,884*
Sheep	96,238	83,910	119,297	299,445	578,940	557,738	621,138	668,404
Goats	87,810	25,407	6,708	119,925	190,433	190,206	165,381	147,827
Pigs	1,535,821	1,447,512	1,469,281	4,452,614	9,226,051	9,456,582	9,495,458	8,870,394
Horses	9,024	8,319	7,634	24,977	54,791	54,657	51,201	48,570

CATEGORIES	1936				Total January-June			
	April	May	June	Total April June	1936	1955 1)	1934 2)	1933 2)
	Total quantities of meat produced (thousand lb)							
Beef	156,842	140,444	129,954	427,240	915,651	1,040,487	1,006,726	944,552
Veal	41,786	39,647	36,453	117,886	225,921	246,137	234,097	213,895
Total	*198,628*	*180,091*	*166,407*	*545,126*	*1,141,572*	*1,286,624*	*1,240,823*	*1,158,447*
Mutton	5,280	4,551	6 560	16,391	32 267	30,910	35,814	39,456
Goat meat	9,233	2,620	441	12,294	18 271	19 164	16,835	16,785
Pigmeat	375,262	324,379	328 263	1,027,904	2 554,407	2,492,954	2,375,334	2,186,232
Horse flesh	5,317	4,784	4,541	14,642	32,156	33,269	30,094	29,304
GENERAL TOTAL	**593,720**	**516,425**	**506,212**	**1,616,357**	**3,778,673**	**3,862,921**	**3,698,900**	**3,430,224**

(1) In the first quarter of 1935 the Saar Territory is not included – (2) Not including Saar Territory

Pigs in Denmark.

(Thousands)

Classification	1936						1935					
—	29 Aug	18 July	13 June	2 May	21 Mar	8 Feb	28 Dec	16 Nov	5 Oct	24 Aug	13 July	25 May
Boars for breeding	23	23	24	23	22	21	21	21	21	21	20	20
Sows in farrow for first time .	77	111	125	126	117	95	97	97	86	75	83	83
Other sows in farrow	178	184	189	182	172	175	181	181	178	184	188	172
Sows in milk . . .	122	108	99	93	100	96	90	89	98	90	78	88
Sows not yet covered (and not for slaughter)	39	30	27	25	25	23	21	26	29	25	24	25
Sows for slaughter .	22	16	15	14	15	18	16	17	14	9	10	12
Total of sows .	*438*	*449*	*455*	*440*	*429*	*407*	*405*	*410*	*405*	*383*	*383*	*380*
Sucking pigs not weaned . . .	1,006	887	810	768	819	779	732	766	860	782	673	724
Young and adult pigs for slaughter												
Weaned pigs under 35 kg .	947	843	826	852	826	816	885	882	792	742	772	797
Pigs of 35 and under 60 kg	696	761	700	686	700	722	723	674	683	693	733	635
Fat pigs of 60 kg. and over .	608	540	559	562	558	518	450	565	534	545	453	500
Total pigs . . .	*3,718*	*3 503*	*3,374*	*3,331*	*3,354*	*3,263*	*3 216*	*3,318*	*3,295*	*3,166*	*3,034*	*3,056*

Poultry-rearing in France.

The following are very-rough estimates published by the Assembly-General of Chambers of Commerce of France.

Comparison of these figures with the results of the 1929 Census demonstrates the very great development of poultry-rearing due to the agricultural crisis and the difficulty of selling grain, but the very rough character of the 1936 figures does not allow the actual extent of the change to be measured. Some estimates give this as 20 % for the last two or three years.

	Number (thousands) 1936 (approximate estimate)
Fowls	100.000
Geese	6.000
Ducks	6.000
Turkeys	2.500
Guinea-fowl	—
Pigeons	7.000
Rabbits	50.000

	Annual production (thousands)
Chickens, geese, etc.	480.000
Rabbits	240.000
Eggs	6.000.000

Live Stock in Poland.

In the following table are given the number of cattle in Poland in the last eight years.

Year	Horses	Cattle	Sheep	Goats	Pigs
	(thousand)				
30 June 1936	3,821	10,163	3,020	378	7,053
30 » 1935	3,760	9,759	2,802	355	6,723
30 » 1934	3,764	9,258	2,554	321	7,091
30 » 1933	3,773	8,985	2,557	278	5,753
30 » 1932	3,940	9,461	2,488	248	5,844
30 » 1931	4,124	9,786	2,599	237	7,321
30 » 1930	4,103	9,400	2,492	227	6,047
30 » 1929	4,047	9,057	2,523		4,829

The data for 1936 are still provisional and may undergo modification when the final results are known but they show a general tendency that is not likely to be affected.

With regard to 1935 there are the following percentage increases· sheep 7.8, goats 6.6, pigs 4.9, cattle 4.1 and horses 1.6. For the various categories of livestock the following are the changes. The number of colts continues to increase though to a more limited degree (18 %) than in preceding years (20 %, 28 %). The number of cattle increased in consequence of the growth in numbers of older animals rather than, as in 1934-35, in that of younger stock. In the current year young stock increased less markedly than in previous years. The growth in number of pigs may be distributed over all age groups. That in sheep and goats was smaller in the past year but is more uniformly distributed over all parts of the country.

Poultry in Czechoslovakia.

We give in the table below, the results of the census of poultry in Czechoslovakia taken on 1 July 1936 and 1935, which refers only to farms.

	1 July 1936			1 July 1935		
	Young Birds	Adult Birds	Total	Young Birds	Adult Birds	Total
Fowls	15,417,730	15 612 080	31,029,810	14,251,658	16,082,404	30,334,062
Geese	5,226,759	1 015 847	6,242,606	5,490,415	1,094,112	6,584,527
Ducks	2,206,367	170 772	2,377,139	1,895,408	167,162	2,062,750
Turkeys	174,452	32 777	207 229	181,213	36,875	218,088
Guinea fowls	—	—	33,240	—	—	32,830

In 1936 cocks numberd 782,788 against 786,435 in 1935 and hens 14,829,292 against 15,295,969 in 1935.

According to the census of 27 May 1930, poultry on farms represent, in comparison with total poultry, the following percentages 87.8 % for fowls, 91.3 % for geese, 88.5 % for ducks, 90.8 % for turkeys and 89.8 for guinea fowls.

The Live Stock Situation in Yugoslavia.

The following table gives figures of the numbers of livestock according to the official enquiry made at the end of January of the years following those indicated in the table.

Year	Cattle	Horses	Asses	Mules	Sheep	Goats	Pigs	Buffaloes
1935	3,982,359	1,200,831	120,925	18,430	9,211,101	1,895,905	2,931,900	36,946
1934	3,989,941	1,205,865	120,034	17,678	8,867,685	1,881,126	2,791,592	38,929
1933	3,876,309	1,186,984	117,496	17,236	8,600,418	1,871,158	2,656,345	36,634
1932	3,812,208	1,156,997	114,719	16,449	8,510,441	1,871,618	2,863,177	38,704
1931	3,871,556	1,168,768	115,270	16,359	8,425,634	1,928,224	3,133,164	40,563
1930	3,812,172	1,161,235	106,944	15,843	7,953,139	1,731,430	2,923,862	37,487
1929	3,728,038	1,140,343	106,117	15,469	7,735,957	1,803,574	2,674,800	36,846
1928	3,654,261	1,109,246	103,528	15,165	7,722,247	1,750,006	2,662,790	32,116
1927	3,729,343	1,120,310	97,509	14,865	7,735,915	1,738,958	2,769,848	30,980
1926	3,706,019	1,116,858	96,298	14,551	7,932,845	1,721,263	2,806,182	31,519
1925	3,768,135	1,106,142	95,236	14,504	7,906,808	1,810,669	2,802,355	27,431
1924	3,784,267	1,053,875	89,779	14,190	7,618,708	1,718,368	2,517,955	28,626
1923	3,869,985	1,062,893	94,720	14,849	7,639,257	1,730,204	2,496,723	31,717
1922	4,058,419	1,043,528	86,036	15,002	8,461,504	1,801,409	2,887,020	31,938
1920 *)	4,951,339	1,062,343	84,182	18,091	7,002,124	1,552,555	3,349,504	51,470

*) Census 31 January 1921

The favourable weather of 1935 and the energetic campaign waged in the last few years for vaccination have together resulted in a healthy head of stock in the last year. Feed supplies, however, have not been very satisfactory. The rather poor fodder crops, small production of hay, very small maize, barley and oats crops, together with the very low prices, have led both stockrearers and arable farmers to slaughter a considerable number of animals for internal consumption. The decrease in numbers of cattle, buffaloes and horses has been entirely due to this great increase in slaughterings, export having very much diminished. The increase in numbers of sheep and goats, which depend for feed especially on the condition of pastures, is due to more satisfactory fodder supplies, to the rather mild winter and to the reduction in internal consumption following the firmer prices for these categories. The increase in pigs despite the considerable rise in exports of live animals, pigmeat and fats and the growth in internal consumption seems due largely to external factors that have created a situation very favourable to pig-rearing but also to the existence of large stocks of maize from the abundant crop of 1934, to the very low maize prices and to large-scale vaccination of the animals in 1935.

Numbers of animals slaughtered in public abattoirs.

Classes of slaughtered livestock	1935	1934	1933	1932	1931	1930	1929	1928
SMALL ANIMALS	**1,219,997**	**1,298,925**	**1,209,403**	**1,169,894**	**1,248,878**	**1,479,110**	**1,474,416**	**1,689,614**
Lambs	725,596	696,286	663,213	616,214	687,572	752,845	714,632	866,750
Ewes	286,721	319,043	287,386	326,799	294,322	348,593	436,330	442,078
Total Sheep	*1,012,317*	*1,015,329*	*950,599*	*943,013*	*981,894*	*1,101,438*	*1,150,962*	*1,308,828*
Female goats	159,513	233,644	209,129	167,026	205,246	276,181	230,299	276,224
Male goats	48,167	49,952	49,675	59,855	61,738	101,491	93,155	104,562
Total goats	*207,680*	*283,596*	*258,804*	*226,881*	*266,984*	*377,672*	*323,454*	*380,786*
CATTLE	**712,401**	**688,745**	**705,537**	**689,724**	**654,986**	**615,220**	**750,372**	**784,403**
Calves	353,190	334,338	338,733	340,800	353,686	285,161	346,087	374,359
Oxen	124,604	128,733	122,006	111,265	104,086	116,255	129,886	153,066
Cower	128,047	116,512	124,454	110,885	102,468	123,333	157,869	138,474
Heifers	54,940	58,980	62,370	59,766	49,872	48,587	63,203	63,441
Steers	35,160	38,802	43,448	46,679	29,356	30,120	39,931	41,077
Bulls	16,460	11,380	14,526	20,329	15,518	11,764	13,396	13,986
PIGS	**573,065**	**518,995**	**524,068**	**572,797**	**757,491**	**641,835**	**575,515**	**646,217**
Fat pigs	483,837	442,504	462,031	425,642	618,466	560,854	520,103	554,636
Thin pigs	1,767	6,147	4,905	50,261	16,738	3,919	3,049	
Young pigs	87,187	69,850	56,935	93,097	122,287	77,062	49,314	91,581
Sucking pigs	277	494	197	3,797	—	—	3,049	—
BUFFALOES	**2,260**	**1,946**	**2,521**	**1,106**	**2,217**	**2,631**	**1,039**	**1,188**
Young buffaloes . . .	2,260	1,142	1,317	581	1,210	1,274	618	465
Buffaloes	0	804	1,204	525	1,007	1,357	421	723
HORSES	**839**	**857**	**750**	**564**	**1,009**	**1,722**	**2,237**	**3,467**
Horses	802	843	733	534	1,009	1,722	2,237	3,397
Colts	37	14	17	30	—	—	—	70
GENERAL TOTALS . .	**2,508,562**	**2,509,468**	**2,442,279**	**2,434,085**	**2,664,777**	**2,740,518**	**2,803,579**	**3,124,889**
Cattle diseased or suspected of disease	7,577	5,627	4,454	4,359	4,733	5,931	4,880	6,267

Though no statistical information is available on slaughterings by butchers and farmers, which account for the largest part of the total, the above table may give an approximate idea of the trend of consumption in the last few years while confirming the above information on consumption in 1935. The increase in consumption of beef animals (especially cows, calves and bullocks) and of pigs has been encouraged by the heavy fall in prices of these categories, while the diminished slaughtering of sheep has been partly determined by the protective measures taken by the Government to encourage wool production.

Exports of animals and derivatives.

Year	Horses	Cattle	Sheep and goats	Pigs	Veal and beef 1)	Pig meat 1)	Pig fat 2)
	Heads	Heads	Heads	Heads	1000 lb	1000 lb	1,000 lb.
1935	31,423	48,854	691,400	218,035	3,159	11,774	11,553
1934	36,115	76,815	655,303	141,446	3,787	3,197	4,748
1933	34,331	70,660	617,217	208,140	5,696	3,661	3,873
1932	19,906	47,225	480,087	273,753	4,992	5,964	4,587
1931	26,003	108,985	602,279	273,459	7,993	4,171	3,318
1930	29,794	136,679	717,110	248,393	6,710	6,446	773
1929	37,180	110,421	850,681	224,901	8,933	11,016	708
1928	38,427	113,488	1,038,678	221,142	8,702	9,481	689

1) Fresh meat — 2) Lard, fresh, salted or dried, fat bacon other fats

The further reduction in exports of cattle and of beef and horsemeat recorded in 1935 is due to the increasingly severe restrictions applied by the principal importer, Italy. With the introduction of economic sanctions exports to Italy ceased completely and new markets had to be found. The slight rise in exports of cattle to Malta, Palestine and Egypt did not, however, replace the Italian market. The abolition of the autarchic policy in Greece as far as cattle are concerned since 1933 and the almost complete disappearance of glanders and sheeppox have favoured the revival of exports of horses, sheep and goats to Greece in the last three years. The decrease in numbers of pigs, the shortage of fats in the industrial countries of Western Europe that are the chief consumers of Yugoslav fat pigs and pig fats and the gradual elimination of United States competition have determined a sharp recovery of exports for live pigs, grain and pigmeat.

Despite all the efforts to protect internal markets and encourage pig rearing, the two principal purchasers, Austria and Czechoslovakia, were obliged in 1935, in consequence of the small maize crop, to reopen their doors to Yugoslav pigs; to these two countries must be added Germany, which has had a heavy import of pig fats from Yugoslavia.

In conclusion mention must be made of the activity of the Office for Control of Livestock Exports, of which the function is not limited to the periodic distribution of export quotas amongst exporters, stockrearers and cooperatives but which is active in maintaining prices and encouraging exports by standardization of product and rigid control of quality.

G. S.

Current information on live stock and derivatives.

Bulgaria: Sufficiency of fodder is assured by pasture while in some places indoor feeding is being carried out. Milk yields of both cattle and buffaloes are good. Sheep and pigs are in good condition, the former finding adequate feed on pasture. Production of ewes' milk is less than last year. Poultry are in good condition and laying is still very good.

Irish Free State: Hay reserves will be up to average in bulk but the quality is not so good as last year's. General reserves will be adequate for normal requirements.

Milk yields showed seasonal declines in September but they were rather above the average for the season.

Great Britain and Northern Ireland· Pastures made continued growth in September and grass was plentiful. In some districts milk yields decreased slightly in England and Wales early in September but they later became normal for the time of year Dairy cows in Scotland maintained splendid condition and milk yields were well maintained in most districts.

Netherlands In mid-September years was very well developed so that feed supplies for dairy cattle were very abundant In comparison with the corresponding month of last year milk production in September was 10-15 % larger

Algeria· September·was hot and dry and grass practically entirely disappeared even in the mountain areas and on the moister valley bottoms; stubble is exhausted, burnt or ploughed in, drinking water is lacking in many places Condition of the animals, which had already deteriorated in August, worsened in September and that of sheep in particular is becoming more and more precarious, large animals may receive supplementary rations and are still in satisfactory condition

Health of stock is on the whole satisfactory though parasites of the alimentary canal have lowered resistance and in some herds have produced a mortality of 15-20 % of the lambs.

Serious shortage of feed prevails in the South of Algiers and of Constantine, in the South of Oran the animals resist better

French Morocco· At the end of August, particularly on the coast, where the temperature was very high, there was scirocco and *chergui.* The water-table and the volume of streams underwent considerable fall but the situation remains better than in previous years. Though grazing tracks are increasingly dry, especially in the south, and stubble is disappearing cattle are still finding more or less adequate feed, thanks especially to an abnormal growth of couch grass on the grazing tracks and fallows

LATEST NEWS

Yugoslavia: According to the most recent estimate area cultivated to spelt this year is about 41,300 acres against 43,800 in 1935 and 42,000 on the average of the five years ending 1934; percentages 94.1 and 98.4. The corresponding production is estimated at about 261,400 centals against 267,000 and 277,000 percentages 97.9 and 94.5.

The area cultivated to meslin this year about 154,300 acres against 149,900 in 1935 and 131,800 on the average of the five years ending 1934; percentages 102.9 and 117.0. The corresponding production is estimated at about 1,209,000 centals (2,084,500 bushels) against 1,074,000 (1,851,800) and 1,045,400 (1,802,500); percentages 112.6 and 115.6.

Bulgaria: The following table shows the yields in 1936, compared with those of 1935 and the average of the five years 1930-1934, of principal crops:

CROPS	1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936: 1935 = 100	% 1936: Average = 100
	thousand centals			thousand bushels				
Wheat	35,583	28,775	31,719	59,304	47,925	52,864	123.7	112.2
Rye	4,469	4,350	5,424	7,980	7,767	9,685	102.7	82.4
Barley	6,674	6,211	7,110	13,905	12,941	14,812	107.4	93.9
Oats	2,989	2,041	2,284	9,341	6,379	7,137	146.4	130.9
Maize	19,536	22,244	18,921	34,887	39,722	33,787	87.8	103.3
Rice (rough)	524	380	342	1,165	844	761	138.0	153.2
Rapeseed	52	482	156	104	963	311	10.8	33.4
Meslin	2,133	1,704	2,588	3 677	2,938	4,463	125.2	82.4
Potatoes	2,667	2,663	1,590	4,445	4,439	2,650	100.1	167.8
Linseed	42	26	6	75	46	10	163 4	721.5
				thousand bales				
Ginned cotton	137	186	41	29	39	9	74.0	336.1
				thousand short tons				
Sesame	40	34	67	2	2	3	116 8	58.9
Sugar beet	1,371	3,401	4,873	69	170	244	40.3	28.1
				thousand pounds				
Sericulture	1) 32	1) 31	1) 33	1) 3,233	1) 3,053	1) 3,276	105.9	98.7
Spelt	356	243	249	35,552	24,332	24,909	146.1	142.7
Tobacco	668	607	535	66,838	60,684	53,527	110 1	124.9
Hemp (fibre)	71	75	42	7,094	7,495	4,173	94.6	170.0
Flax (fibre)	14	8	3	1,412	786	336	179 6	420.2
Hemp (seed)	56	53	32	5,587	5,325	3,155	104 9	177.1

1) Cocoons.

United States: According to a cable received on 22 October from the Department of Agriculture, subnormal temperatures early in the preceding week were followed by general warm weather. The North-West continues dry but heavy to light rains were reported in many sections, especially east of the Appalachian Mountains. Conditions were, on the whole, favourable for the winter grain crops.

Maize husking was somewhat delayed by the wet weather.

Except in the East the weather was generally favourable for the picking and ginning of cotton.

India: According to the most recent estimate the area cultivatedto sesame this year is about 4,023,000 acres against 4,055,000 in 1935-36 and 3,882,000 on the average of the five years ending 1934-35; percentages 99.2 and 103.6.

The first estimate of area sown to rice in all-India, including Burma, is 77,786,000 acres an increase of 2.8 % on the corresponding estimate of 75,698,000 last year and an incresse of 2.9 % on the corresponding average for the five years ending 1934-35, which was 75,579,000 acres.

The area in Burma, from which the export surplus is derived, shows only the small increase of 0.8 % on the first estimate of last season, being 12,499,000 acres against 12,395,000 acres. In India proper, which is an importing area, this year's estimate is, however, 65,287,000 acres, 3.1 % above the 63,303,000 of last year.

Japan According to the most recent estimate production of cane-sugar this season will be about 2,723,000 centals (136,100 short tons) against 2,426,600 (121,300) in 1935-36 and 2,018,000 (100,900) on the average of the five years ending 1934-35, percentages 112 2 and 134 9

Australia According to the most recent estimate area cultivated to wheat this year is about 12,640,000 acres against 11,924 000 in 1935-36 and 15,223,000 on the average of the five years ending 1934-35, percentages 106 0 and 83 0 The corresponding production is estimated at about 77,700,000 centals (129,500,000 bushels) against 85,559,000 (142,598,000) and 111,464,000 (185,773,000), percentages 90 8 and 69 7

TRADE

COUNTRIES	August				Twelve months (August 1-July 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
			Wheat. — Thousand centals (1 cental = 100 lb.)							
Exporting Countries										
Bulgaria	608	0	0	0	683	220	0	0	—	—
Hungary	1 866	126	0	0	8 164	6 526	0	0	—	—
Lithuania	0	7	0	0	1 274	584	0	0	—	—
Poland	465	84	0	0	1 164	1 274	0	5	—	—
Romania	3 023	306	0	0	3 521	2 538	2	4	—	—
Yugoslavia	1 140	2	0	0	308	2 500	0	2	—	—
U. S. S. R.					2) 16 797	2) 1 257	2) 134	2) 1 038		—
Canada	12 694	13 018	2	0	155 214	86 627	9	2	—	—
Argentina	2 112	6 333	—	—	39 328	105 873	—	—		—
Chile					2) 1 314	2) 653	2) 0	2) 395	—	—
Syria and Lebanon	15	0	0	0	181	278	7	18	—	—
Algeria	432	364	0	11	5 523	7 028	653	309	—	—
French Morocco	2	240	9	0	2 919	4 482	0	0	—	—
Tunis	90	622	41	1	2 421	2 258	183	185	—	—
Australia	1 545	1 775	0	0	43 936	44 974	0	0	—	—
New Zealand					0	0	266	22		—
Importing Countries										
Germany	42	0	145	194	1 299	121	2 138	6 989	—	—
Austria	0	0	406	139	0	0	3 192	4 802	—	—
Belgium	18	60	2 361	2 037	970	1 739	24 319	25 452	—	—
Denmark	0	0	267	388	35	31	5 152	10 703	—	—
Spain					2) 0	0	2) 18	2) 0	—	—
Estonia	0	24	0	0	84	137	84	0	—	—
Irish Free State	0	0	628	640	0	0	8 7 9	9 460	—	—
Finland	0	0	194	101	0	0	1 618	1 338	—	—
France	597	1 155	719	1 605	6 642	22 705	10 056	15 829	—	—
Gt. Brit. and N. Irel.	225	20	8 382	7 886	734	827	114 400	115 179	—	—
Greece	0	0	922	1 087	0	0	8 823	8 684	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	320	0	0	976	657	0	0	—	—
Norway	0	0	238	267	0	0	3 382	3 907	—	—
Netherlands	0	0	736	1 083	4	811	11 367	11 200	—	—
Portugal	0	0	13	29	2 443	0	152	207	—	—
Sweden	443	174	30	43	2 119	1 973	1 010	902	—	—
Switzerland	0	0	732	633	2	2	10 002	10 750	—	—
Czechoslovakia	0	0	0	174	4	4	1 294	649	—	—
United States	132	4	4 447	2 163	163	1 356	31 791	15 540	—	—
Ceylon	—	—	11	15	—	—	99	33	—	—
China	176	24	44	715	160	259	3 735	10 889	—	—
India	201	4	0	0	439	247	278	101	—	—
Japan	—	—			—		3) 7 683	3) 9 431	—	—
Egypt					2	51	2	1 [illegible]5	—	—
Union of South Afr.					0	2	24	531	—	—
Totals	**25,766**	**24,632**	**20,388**	**19,528**	**284,833**	**297,980**	**256,652**	**264,055**	—	—
			Rye. — Thousand centals (1 cental = 100 lb.)							
Exporting Countries										
Germany	0	0	7	57	820	51	690	5 393	—	—
Bulgaria	0	0	0	0	121	0	0	0	—	—
Estonia	29	46	0	0	333	783	331	22	—	—
Hungary	161	22	0	0	209	728	0	0	—	—
Latvia	229	119	0	0	2 041	1 929	0	0	—	—
Lithuania	9	88	0	0	1 975	1 199	0	0	—	—
Poland	545	529	0	0	4 782	11 665	0	0	—	—
Romania	108	0	0	0	346	0	0	0	—	—
Sweden	4	79	7	2	904	2 000	18	22	—	—
U. S. S. R.			—	—	2) 1 475	2) 547	—	—	—	—
Canada	302	42	0	11	1 376	666	0	11	—	—
Argentina	143	99	—	—	2 273	5 882	—	—	—	—
Algeria	11	7	0	0	26	26	0	0	—	—
Importing Countries										
Austria	0	0	280	4	2	0	994	1 777	—	—
Belgium	7	18	328	260	26	31	3 680	1 797	—	—
Denmark	0	0	410	448	0	4	4 176	4 090	—	—
Finland	0	0	22	60	0	0	1 504	450	—	—
France	0	0	7	2	0	4	29	35	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	154	454	0	0	3 358	2 535	—	—
Netherlands	15	0	179	143	77	227	1 748	1 854	—	—
Switzerland	0	0	15	9	0	0	342	161	—	—
Czechoslovakia	0	0	0	2	4	4	18	20	—	—
United States	0	0	633	820	4	0	1 221	5 917	—	—
Totals	**1,563**	**1,049**	**2,042**	**2,272**	**16,794**	**25,746**	**18,109**	**24,084**	—	—

---

2) 3) See notes page 764

COUNTRIES	AUGUST				TWELVE MONTHS (August 1- July-31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	33	7	0	0	758	659	31	73	—	—
Bulgaria	0	0	0	0	0	0	0	0	—	—
Spain	...	...	...		2) 13	2) 0	2) 0	2) 0	—	—
France	192	218	112	82	3,197	4,264	1,226	1,539	—	—
Hungary	88	97	0	0	1,248	809	0	0	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	0	0	0	0	0	0	0	0	—	—
Poland	141	95	0	0	2,163	750	0	0	—	—
Romania	2	2	0	0	2	0	0	0	—	—
Yugoslavia	11	4	0	0	75	40	0	0	—	—
U. S. S. R.	...	...	...	...	2) 637	2) 745	1) 370	2) 205	—	—
Canada	761	739	11	13	9,758	9,310	121	390	—	—
United States . . .	600	529	7	0	6,733	7,637	88	9	—	—
Argentina	121	185	—	—	1,759	2,138	—	—	—	—
Chile	...	...	...	...	2) 73	2) 46	2) 26	2) 55	—	—
India	29	37	4	0	403	309	11	4	—	—
Japan	...	...	...	...	3) 3,686	3) 6,204	3) 181	3) 22	—	—
Algeria	73	53	4	9	842	911	88	104	—	—
French Morocco . .	7	0	0	0	4	51	0	0	—	—
Tunis	24	33	13	0	410	624	31	62	—	—
Australia	983	911	0	0	12,148	14,376	0	2	—	—
Importing Countries,										
Austria	0	0	42	49	2	2	750	774	—	—
Belgium	4	4	18	9	60	51	90	148	—	—
Denmark	2	2	11	24	22	18	218	474	—	—
Estonia	0	0	0	0	0	0	0	0	—	—
Irish Free State . .	0	0	9	11	0	0	159	489	—	—
Finland	0	0	55	71	0	0	688	853	—	—
Gr. Brit. and N. Irel	214	269	754	719	2,652	3,400	9,528	9,079	—	—
Greece	0	0	0	2	0	0	22	33	—	—
Norway	0	0	55	44	4	4	884	999	—	—
Netherlands . . .	0	2	139	68	7	9	1,206	908	—	—
Portugal	—	—	4	13	—	—	97	150	—	—
Sweden	2	0	0	0	18	0	0	2	—	—
Czechoslovakia . .	0	0	0	0	7	4	24	20	—	—
Ceylon	—	—	35	37	—	—	337	403	—	—
China	82	2	44	90	22	57	842	1,499	—	—
Indo-China	0	0	44	35	0	0	390	384	—	—
Java and Madura .	—	—	...	...	—	—	1.281	1,149	—	—
Syria and Lebanon .	20	2	0	7	121	62	77	101	—	—
Egypt	...	...	...	...	0	0	77	73	—	—
Union of South Afr. .	...	...	...	...	2	2	13	13	—	—
New Zealand . . .	...	...	...	...	0	2	216	234	—	—
Totals . . .	**3,389**	**3,191**	**1,361**	**1,283**	**46,826**	**52,484**	**19,072**	**20,250**	—	—
	Barley. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	18	2	0	0	44	0	0	0	—	—
Spain	...	...	...	...	2) 15	2) 0	2) 0	2) 0	—	—
Hungary	7	18	0	0	282	93	362	24	—	—
Lithuania	0	2	0	0	328	176	0	0	—	—
Poland	542	201	0	0	7,727	7,180	0	0	—	—
Romania	1,801	761	0	0	4,065	4,198	0	0	—	—
Czechoslovakia . .	62	2	0	0	805	1,140	2	2	—	—
Yugoslavia	0	0	0	0	2	538	24	0	—	—
U. S. S. R.	...	...	—	—	2) 13,477	2) 3,120	—	—	—	—
Canada	939	346	0	0	3,684	7,227	0	0	—	—
United States . . .	772	276	690	2	4,711	2,132	337	5,291	—	—
Argentina	181	146	—	—	4,416	9,654	—	—	—	—
Chile	...	...	—	—	2) 545	2) 1,206	—	—	—	—
India	0	0	0	9	40	390	121	13	—	—
Algeria	306	40	176	55	789	1,177	575	754	—	—
Egypt	...	...	...	...	2	0	13	18	—	—
French Morocco . .	1,021	88	0	0	3,192	6,241	0	. 0	—	—
Australia	82	64	0	0	1,241	1,380	0	0	—	—
Importing Countries:										
Germany	0	0	26	152	0	2	1,532	10,498	—	—
Austria	0	0	97	68	0	0	1,175	1,572	—	—
Belgium	51	26	591	494	456	454	9,246	8,481	—	—
Denmark	9	62	2	71	1,541	1,398	77	1,030	—	—
Irish Free State . .	0	0	0	0	7	4	452	256	—	—
France	0	0	659	187	0	2	5,057	3,999	—	—
Gr. Brit. and N. Irel.	0	0	1,605	1,859	4	9	22,254	14,315	—	—
Greece	0	0	11	7	0	0	154	77	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	40	9	0	2	337	168	—	—
Netherlands . . .	11	0	639	606	214	194	6,605	5,913	—	—
Switzerland	0	0	82	79	0	0	2,546	2,696	—	—
Syria and Lebanon .	130	4	0	0	928	139	7	44	—	—
Tunis	0	291	227	4	1,667	395	130	1,010	—	—
Totals . . .	**5,932**	**2,329**	**4,845**	**3,602**	**50,182**	**48,451**	**51,006**	**56,161**	—	—

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935 36	1934-35	1935-36	1934-35	1934-35	1934-35
	Oats. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Irish Free State	0	0	0	0	0	0	0	0	—	—
Hungary	13	0	0	0	108	0	0	0	—	—
Lithuania	0	0	0	0	518	212	0	0	—	—
Poland	112	26	0	0	2,595	994	0	0	—	—
Romania	71	49	0	0	386	68	0	0	—	—
Czechoslovakia	29	42	0	0	82	53	13	2	—	—
Yugoslavia	0	31	0	0	73	280	0	0	—	—
Canada	128	220	0	0	4,074	4,965	115	0	—	—
United States	2	2	0	0	205	150	22	4,828	—	—
Argentina	68	699	—	—	3,086	13,362	—	—	—	—
Chile	...	...	...	...	2) 626	2) 1,087	2) 0	2) 0	—	—
Tunis	0	46	0	0	214	467	0	0	—	—
Australia	7	7	0	0	97	265	2	2	—	—
Importing Countries:										
Germany	0	0	0	79	0	13	463	4,791	—	—
Austria	0	0	75	51	0	0	613	287	—	—
Belgium	0	0	15	15	0	0	897	430	—	—
Denmark	9	7	2	18	439	657	143	884	—	—
Estonia	0	0	0	0	0	15	44	0	—	—
Finland	0	0	20	0	0	2	769	11	—	—
France	0	0	115	33	7	33	476	428	—	—
Gr Brit and N Irel.	2	0	331	163	20	18	2,866	3,488	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	0	0	130	0	0	0	—	—
Norway	0	0	0	0	0	0	7	64	—	—
Netherlands	0	0	44	55	214	104	516	873	—	—
Sweden	0	0	15	0	181	37	280	24	—	—
Switzerland	0	0	260	331	0	0	4,416	4,354	—	—
Algeria	172	4	9	13	260	132	46	141	—	—
Totals	**614**	**1.133**	**886**	**758**	**13,315**	**22,914**	**11,688**	**20,607**	—	—
	Maize. — Thousand centals (1 cental = 100 lb.).									
					TEN MONTHS (November 1-August 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
Exporting Countries										
Bulgaria	289	0	0	0	1,700	399	0	0	401	**0**
Hungary	0	0	251	589	31	130	7,106	1,512	130	**2,996**
Romania	1,120	1,023	0	0	17,035	9,440	0	0	11,177	**0**
Yugoslavia	265	617	0	0	1,336	11,191	0	0	12,652	**0**
United States	31	26	866	4,791	280	247	6 863	18,735	251	**23,034**
Argentina	16,290	14,374	—	—	125,351	114,442	—	—	143,371	—
Java and Madura	...	...	—	—	1) 2,150	1) 1 347	—	—	1,422	—
Indo-China	1,175	873	—	—	7,568	6,914	—	—	10,099	—
Syria and Lebanon	20	0	0	0	79	2	2	7	2	**7**
Egypt	...	...	...	...	1) 2	1) 0	1) 9	1) 22	0	**31**
Union of South Afr.	0	1,131	...	...	1,446	7,791	1) 4	1) 0	10,247	**0**
Importing Countries:										
Germany	0	0	185	265	0	0	4,061	7,355	0	**7,738**
Austria	0	0	681	395	0	0	6,166	8,252	0	**9,431**
Belgium	11	26	1,554	1,713	448	597	16,131	13,078	728	**16,211**
Denmark	0	0	492	445	0	0	3,333	4,506	0	**5,084**
Spain	...	...	...	...	2) 0	2) 0	2) 1,482	2) 434	0	**1,052**
Irish Free State	0	0	670	833	0	0	4,052	5,271	0	**6,237**
Finland	0	0	159	146	0	0	1,817	597	0	**988**
France	0	0	1,056	633	2	9	11,627	12,068	9	**14,154**
Gr. Brit and N. Irel	161	251	6,402	6,041	1,133	1,936	63,632	51,954	2,222	**64,492**
Greece	0	0	66	86	0	0	1,473	913	0	**972**
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	256	476	0	0	2,271	2,205	0	**2,754**
Netherlands	0	0	1,504	1,221	2	0	16,671	15,807	0	**19,321**
Poland	0	0	0	0	0	0	0	0	0	**0**
Portugal	0	0	18	29	2	0	322	478	2	**548**
Sweden	0	0	141	240	0	0	1,228	769	0	**891**
Switzerland	0	0	99	146	0	0	1,477	1,382	0	**1,892**
Czechoslovakia	0	0	306	53	0	0	1,958	2,110	0	**2,672**
Canada	7	0	214	293	51	4	2,231	3,565	4	**4,566**
Japan	—	—	...	...	—	—	3) 3,708	3) 9	—	**1,777**
Tunis	0	0	33	0	4	2	33	55	7	**55**
Totals	**19,369**	**18,321**	**14,953**	**18,395**	**158,620**	**154,451**	**157,657**	**151,084**	**192,724**	**186,903**

1) 2) 3) See notes page 764.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Rice. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Spain	...	...	...	...	2) 558	2) 375	1) 0	2) 0	613	0
Italy	—	—	—	—	—	—	—	—	2,815	73
United States	7	55	106	13	110	996	631	439	1,667	534
Brazil	...	...	—	—	1) 937	1) 902	—	—	2,086	—
India	2,218	2,326	141	553	22,260	30,073	2,998	2,685	37,179	4,784
Indo-China	3,366	2,026	...	...	27,721	31,021	2) 22	2) 7	38,921	35
Siam	2,934	2,857	—	—	23,629	22,699	—	—	34,350	—
Egypt	...	...	...	...	1) 1,426	1) 657	1) 0	1) 13	1,561	15
Importing Countries:										
Germany	64	44	540	403	344	289	2,624	2,818	611	4,209
Austria	0	0	49	46	0	0	377	425	0	745
Belgium	15	2	73	75	88	29	631	600	62	933
Denmark	0	0	2	2	0	0	66	62	0	90
Estonia	—	—	4	2	—	—	13	9	—	18
Irish Free State	0	0	2	4	0	0	53	44	0	55
France	33	44	1,270	767	223	439	10,845	6,486	507	9,464
Gr. Brit. and N Irel	26	7	165	119	117	115	1,737	1,991	141	2,427
Greece	0	0	64	57	0	0	419	397	0	593
Hungary	0	0	33	9	0	0	251	192	0	414
Latvia	0	0	0	0	0	0	9	7	0	13
Lithuania	0	0	0	0	0	0	4	4	0	9
Norway	0	0	4	4	0	0	79	79	0	110
Netherlands	247	181	414	205	1,239	1,332	2,668	2,035	2,044	3,287
Poland	68	29	93	101	139	108	745	1,001	196	1,045
Portugal	—	—	60	86	—	—	243	373	—	414
Sweden	—	—	0	7	—	—	183	176	—	227
Switzerland	0	0	22	35	0	0	276	291	0	511
Czechoslovakia	0	0	88	101	0	0	756	882	0	1,473
Yugoslavia	0	0	0	40	0	0	269	267	0	441
Canada	2	0	33	35	15	2	690	582	4	644
Chile	—	—	...	...	—	—	2) 236	2) 258	—	306
Ceylon	0	0	941	1,100	2	2	8,179	8,217	2	12,511
China	31	4	198	520	417	60	6,548	27,236	146	28,581
Java and Madura	...	...	...	...	1) 68	1) 13	1) 159	3) 2,487	154	2,604
Japan	...	...	...	...	3) 66	3) 582	3) 159	3) 77	708	866
Syria and Lebanon	0	0	20	26	0	0	223	251	0	414
Algeria	0	0	37	9	2	0	190	108	2	152
Tunis	0	0	7	0	0	0	31	22	0	26
Union of South Afr.	...	...	...	..	1) 0	1) 0	1) 778	1) 642	0	1,204
Australia	20	20	0	0	157	168	37	29	247	51
New Zealand	...	...	..	...	1) 0	1) 0	1) 51	1) 51	0	73
Totals	**9,031**	**7,575**	**4,367**	**4,319**	**79,518**	**89,862**	**43,180**	**61,243**	**124,016**	**79,351**
	Linseed. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Lithuania	18	9	0	0	218	90	0	0	280	0
Argentina	2,053	3,075	—	—	19,694	28,250	—	—	39,088	—
India	496	49	0	0	4,290	1,387	0	0	2,919	0
Tunis	0	0	0	0	0	2	0	0	2	0
Importing Countries										
Germany	0	0	82	922	0	0	3,406	3,512	0	5,452
Belgium	2	0	251	236	90	84	1,603	1,709	112	2,725
Denmark	—	—	42	26	—	—	311	366	—	562
Spain	—	—	...	...	—	—	2) 165	2) 194	—	558
Estonia	0	0	0	0	2	2	20	4	4	20
Finland	0	0	9	11	0	0	90	57	0	84
France	0	0	348	503	4	4	4,473	3,962	4	5,695
Gr Brit. and N. Irel.	0	0	428	370	0	2	4.226	3,547	2	5,774
Greece	0	0	9	11	0	0	37	75	0	119
Hungary	0	0	15	0	0	4	15	0	9	0
Italy	—	—	—	—	—	—	—	—	0	1,590
Latvia	0	0	2	4	26	49	35	55	57	84
Norway	0	0	26	66	0	0	351	412	0	536
Netherlands	4	7	1,074	381	77	60	4,782	6,388	77	8,871
Poland	0	0	0	0	77	0	0	0	26	0
Sweden	—	—	71	64	—	—	522	655	—	915
Czechoslovakia	0	0	15	24	0	0	342	408	0	578
Yugoslavia	0	0	0	7	0	0	60	134	0	185
Canada	24	0	2	0	29	4	467	256	11	284
United States	—	—	375	633	—	—	4,262	6,925	—	9,833
Japan	...	...	...	...	3) 0	3) 2	3) 110	3) 223	2	478
Australia	0	0	11	148	0	0	364	675	0	750
Totals	**2,597**	**3,133**	**2,760**	**3,406**	**24,507**	**29,940**	**25,641**	**29,547**	**42,593**	**45,093**

---

1) 2) 3) See notes page 764.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1 August 31)				TWELVE MONTHS (January 1 Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
					Butter. – (Thousand lb)					
Exporting Countries										
Austria	833	644	0	2	4 500	3 856	9	11	5 688	18
Denmark	25 113	25 256	9	0	216 581	207 218	187	0	304 936	0
Estonia	2 714	3 062	0	0	14 489	15 618	0	0	23,894	0
Irish Free State	8 697	9 824	0	9	40 074	46 857	9	33	59 470	40
Finland	2 288	1 788	0	0	20 657	15 701	0	0	22 582	0
Hungary	1 107	218	0	0	5 154	2 698	0	0	5 516	0
Latvia	4 528	5 465	0	0	25 027	26 242	0	0	37 073	0
Lithuania	4 209	4 544	0	0	20 624	17 655	0	0	26 795	0
Norway	0	0	0	0	362	247	0	0	417	4
Netherlands	13 827	10 911	2	4	92 998	73 147	37	234	103 146	430
Poland	3 245	1 550	0	0	15 377	6 343	0	2	12 533	2
Sweden	3 924	5 016	0	0	26 941	33 693	412	2	44 664	1,340
U. S. S. R.					) 8 098	) 26 634	) 295	2) 388	64 801	529
Argentina	1 076	64	—	—	14 487	9 725	—	—	14 941	—
India	24	22	68	57	152	141	646	494	240	789
Syria and Lebanon	7	15	4	31	392	348	119	236	463	309
Australia	6 127	5 725	0	0	118 847	163 107	4	2	256 769	2
New Zealand	12 630	16 462	—	—	197 473	197 131	—	—	312 445	—
Importing Countries										
Germany	0	0	12 769	11 252	2	11	100 024	99 801	13	156,529
Belgium	4	4	84	251	44	44	7 253	8 067	71	13,312
Spain					2) 11	2) 15	) 7	2) 64	26	79
France	1 947	1 700	165	110	8 093	7 280	3 752	862	11 605	1,504
Gr. Brit. and N. Irel.	774	637	82 601	96 195	6 466	12 211	736 593	764 142	15 768	1 076 827
Greece	—	—	64	145		—	542	593	—	1 014
Italy	—	—		—	—	—	—	—	437	930
Switzerland	0	0	20	11	2	2	1 506	117	2	302
Czechoslovakia	0	0	0	0	2	0	366	1 962	4	2,928
Canada	952	37	2	31	4 733	282	110	95	7 696	148
United States	82	57	1 182	148	597	500	6 171	21 813	957	22 675
Ceylon	—	—	93	42		—	505	571	—	855
Java and Madura	—	—				—	1) 5 719	1) 5 930	—	10 247
Japan	—	—			—	—	3) 7	3) 11	—	22
Egypt					1) 37	1) 115	1) 734	1) 584	128	994
Tunis	0	2	110	84	2	13	1 263	1 385	24	2 017
Totals	**94,108**	**93,003**	**97 173**	**108,373**	**842,222**	**866,834**	**866,270**	**907,399**	**1,333,104**	**1,293,846**
					Cheese. — (Thousand lb)					
Exporting Countries										
Bulgaria	254	494	0	0	2 366	2 255	0	0	4 224	0
Denmark	1 764	1 171	2	2	14 535	8 715	13	27	14 689	29
Finland	999	1 001	0	2	6 949	5 906	9	11	9 365	22
Italy	—	—	—	—	—	—	—	—	61 223	10 657
Lithuania	2	2	0	0	456	452	0	2	496	2
Norway	337	271	18	15	2 187	1 878	134	148	3 146	251
Netherlands	11 625	12 690	57	60	86 436	89 418	551	474	134 597	838
Poland	44	11	11	20	1 058	545	150	207	620	287
Switzerland	2 509	3 230	238	247	28 266	26 279	1 973	2 121	40 248	3,851
Czechoslovakia	55	99	276	262	594	1 008	1 753	1 742	1 814	2 663
Yugoslavia	463	454	2	4	2 174	2 313	22	35	4 381	57
Canada	10 108	6 479	90	121	34 871	15 995	602	763	55 720	1,274
Australia	154	659	11	9	6 111	9 791	49	44	15 335	77
New Zealand	5 897	10 640			120 926	133 109	1) 0	1) 0	193 489	0
Importing Countries										
Germany	11	51	6 221	4 738	192	516	41 277	39 324	728	61,661
Austria	827	474	152	134	5 637	4 780	1 356	1 279	7 366	1 724
Belgium	44	35	4 753	5 941	227	183	32 690	33 993	355	50,726
Spain					) 62	) 66	) 664	2) 1 279	108	2 524
Irish Free State	406	71	4	11	922	271	71	51	1 027	62
France	1 817	1 349	2 143	2 423	15 379	15 962	20 706	21 544	24 628	34,421
Gr. Brit. and N. Irel.	639	531	19 531	20 840	4 065	3 677	190 312	202 654	5 818	282 933
Greece	44	0	9	40	376	126	273	941	181	1,120
Hungary	82	7	0	0	494	148	0	2	278	4
Portugal	—	—	24	31	—	—	181	231	—	417
Sweden	—	—	196	106	—	—	2 026	765	—	2,502
United States	99	99	6 453	3 646	774	807	36 268	30 384	1 153	48 934
India	0	0	99	79	2	2	650	708	4	1,276
Java and Madura	—	—			—	—	1) 899	1) 1 047	—	1 920
Syria and Lebanon	2	62	24	90	227	430	663	650	503	979
Algeria	2	4	628	851	55	86	7 150	7 544	119	13,349
Egypt					1) 15	1) 55	1) 3 960	1) 3 929	86	7,330
Tunis	4	2	201	282	93	35	755	1 841	46	2,948
Totals	**38,188**	**39,886**	**41,143**	**39,954**	**328,849**	**324,788**	**346,127**	**353,735**	**581,747**	**534,838**

1) 2) 3) See notes page 764

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
	Cotton. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries										
United States	961	1.336	64	40	32,611	26,511	791	536	—	—
Argentina	161	170	—	—	1,030	694	—	—	—	—
Brazil	...	...	—	—	3,549	3,567	—	—	—	—
India	679	496	75	99	14,961	12,553	1,285	1,841	—	—
Egypt	...	...	—	—	8,073	7,912	—	—	—	—
Importing Countries										
Germany	0	66	386	717	573	966	7,264	6,391	—	—
Austria	0	0	44	60	0	4	886	672	—	—
Belgium	55	53	143	181	653	710	2,374	2,070	—	—
Denmark	—	—	11	9	—	—	176	185	—	—
Spain	...	...	...	...	2) 33	2) 49	2) 2,077	2) 1,991	—	—
Estonia	0	0	9	9	0	0	119	117	—	—
Finland	0	0	15	15	0	4	280	287	—	—
France	26	20	317	437	335	617	7,123	4,941	—	—
Gr. Brit and N Irel.	84	64	1,146	617	747	710	15,168	11,250	—	—
Greece	0	0	7	15	11	11	110	165	—	—
Hungary	0	0	40	35	0	0	560	489	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	7	9	0	0	97	108	—	—
Norway	0	0	2	4	0	0	71	64	—	—
Netherlands	2	0	77	79	4	4	1,001	847	—	—
Poland	0	0	130	126	4	9	1,614	1,437	—	—
Portugal	—	—	22	35	—	—	560	450	—	—
Sweden	—	—	37	53	—	—	672	624	—	—
Switzerland	0	0	33	20	0	2	549	564	—	—
Czechoslovakia	9	4	159	137	49	73	2,130	1,554	—	—
Yugoslavia	0	0	26	33	0	0	375	320	—	—
Canada	—	—	71	71	—	—	1,358	1,241	—	—
China	22	22	51	64	892	384	915	1,640	—	—
Japan	...	...	...	...	3) 456	3) 545	3) 14,659	3) 14,795	—	—
Algeria	0	0	0	0	0	4	4	4	—	—
Totals	**1,999**	**2,231**	**2,872**	**2,865**	**63,981**	**55,329**	**62,218**	**54,583**	—	—
	Wool. — (Thousand lb.).									
					TWELVE MONTHS (September 1-August 31)				TWELVE MONTHS (Sept 1-August 31)	
Exporting Countries										
Irish Free State	1,819	1,841	53	24	15,977	13,486	562	646	—	—
Hungary	322	181	44	31	952	1,867	1,900	3,267	—	—
Argentina *a)*	9.171	8,585	—	—	247,192	271,106	—	—	—	—
b)	1,706	3,047	—	—	31,961	32,218	—	—	—	—
Chile	...	...	...	..	2) 18,047	2) 21,729	2) 1,166	2) 207	—	—
India	2,820	4,107	313	425	56,416	52,505	6,832	7,423	—	—
Syria and Lebanon	948	2	2	0	4,930	5,545	223	82	—	—
Algeria	1,248	1,129	176	203	14,793	8,177	2,176	2,337	—	—
Egypt			..	...	1) 3,552	1) 3,040	1) 64	1) 51	—	—
Un. of S. Africa *a)*	1,795	558	...	...	213,150	213,563	1) 97	1) 57	—	—
b)	525	871	..	..	6,512	8,620	1) 2,015	1) 1,329	—	—
Australia *a)*	6,997	9,187	234	179	732,907	815,232	9,222	3,695	—	—
b)	4 491	4,863	2	0	64,627	73,571	157	132	—	—
New Zealand *a)*	2,240	2,416	...	...	262,902	160,673	1) 90	1) 101	—	—
b)	5,650	4,453		.	52,812	46,196	1) 22	1) 31	—	—
Importing Countries										
Germany *a)*	9	77	9,949	8,973	395	5,701	182,850	235,040	—	—
b)	7	37	4,092	2,879	1,146	2,086	35,991	55,398	—	—
Austria	22	11	1,041	1,863	251	1,041	23,671	18,843	—	—
Belgium *a)*	3,214	3,115	7.987	11,347	68,875	99,235	220,622	222,639	—	—
b)	2,024	1,614	536	463	26,553	20,227	5,348	4,394	—	—
Denmark	33	64	212	251	392	401	4,923	4,700	—	—
Spain	...	...	.	..	2) 4,015	2) 2,606	2) 6,191	2) 9,835	—	—
Finland	9	0	448	494	214	220	5,692	5,417	—	—
France	6,113	2,626	13,847	29,205	56,968	43,863	361,072	374,260	—	—
Gr. Brit and N. Irel	20,369	26,398	33,391	39,084	321,201	317,072	879,321	836,329	—	—
Greece	152	46	392	503	1,676	721	11,050	7,568	—	—
Italy *a)*	—	—	—	—	—	—	—	—	—	—
b)	—	—	—	—	—	—	—	—	—	—
Norway	73	95	196	207	1,111	1,329	2,820	2,304	—	—
Netherlands *a)*	397	141	381	227	3,499	3,060	6,975	6,276	—	—
b)	75	66	370	406	1,235	1,501	5.110	7,857	—	—
Poland	0	0	4,209	2,981	165	112	44,401	36,346	—	—
Sweden	—	—	1,806	1,706	—	—	20,324	18,263	—	—
Switzerland	40	18	1,579	1,724	256	212	15,973	22,053	—	—
Czechoslovakia	71	29	2,765	5,115	1,074	1,429	43,134	33,213	—	—
Yugoslavia	302	84	1,100	778	4,958	1,107	9,509	7,690	—	—
Canada	1,087	1,197	659	1,272	8,543	6,261	22,520	11,973	—	—
United States	0	2	17,544	20,362	24	29	241,892	147,234	—	—
Japan	...	...	...	...	3) 833	3) 306	3) 232,090	3) 163,901	—	—
Tunis	49	90	42	31	1,107	983	518	295	—	—
Totals	**73,778**	**76,950**	**103,371**	**130,733**	**2,231,221**	**2,237,030**	**2,406,523**	**2,251,186**	—	—

Coffee. — (Thousand lb.).

COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1-June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries:					
Brazil	...	...	1) 140,567	1) 163,925	2,046,520
India	331	176	915	203	26,147
Java and Madura	...	..	1) 2,967	1) 6,124	54,351
Importing Countries:					
Germany	0	0	0	0	0
Belgium	139	62	249	121	728
France	4	0	7	2	4
Gr. Britain and N. Ireland	1,239	4,059	2,740	5,869	23,473
Netherlands	33	712	53	1,230	6,839
Portugal	132	194	509	406	3,430
Switzerland	0	0	0	0	2
Canada	13	13	42	24	214
United States	631	459	1,281	955	8,792
Ceylon	0	0	0	0	2
Syria and Lebanon	0	0	0	0	4
Australia	9	2	13	4	24
Totals	—	—	—	—	**2,170,630**
			IMPORTS.		
Importing Countries					
Germany	25,098	25,814	57,748	54,055	329,173
Austria	1,056	988	2,002	1,964	11,462
Belgium	9,354	7,882	19,445	15,710	108,970
Bulgaria	55	53	163	128	1,100
Denmark	3,752	4,321	9,372	8,543	56,467
Spain	. .			..	52,913
Estonia	11	13	57	24	192
Irish Free State	22	37	97	86	606
Finland	4,773	3,250	8,468	6,698	42,428
France	34,760	39,582	66,388	74,067	425,818
Gr Britain and N Ireland	540	719	1,294	1,653	52,270
Greece	1,071	1,049	2,405	2,134	13,314
Hungary	317	207	595	459	4,398
Italy	—	—	—	—	—
Latvia	37	13	49	26	251
Lithuania	9	22	62	42	412
Norway	2,158	3,397	4,700	7,820	41,515
Netherlands	1,526	8,763	2,798	13,889	91,534
Poland	1,023	743	2,436	1,704	11,718
Portugal	933	1,261	2,820	1,964	13,336
Sweden	7,948	8,415	16,405	16,555	105,842
Switzerland	2,101	3,812	5,410	10,659	38,281
Czechoslovakia	1,931	1,894	3,572	3,404	23,832
Yugoslavia	906	972	1,640	2,317	15,210
Canada	2,207	2,463	5,582	4,877	39,196
United States	119,293	124,445	238,223	271,657	1,853,267
Chile	...	...	...	...	7,527
Ceylon	282	278	655	578	2,738
Japan	...	...	...	...	3) 10,307
Syria and Lebanon	99	243	271	249	2,390
Algeria	730	2,463	3,261	5,260	32,452
Egypt	...	...	1) 1,570	1) 1,753	17,324
Tunis	163	192	428	423	3,342
Union of S. Africa	...	...	1) 2,683	1) 2,747	31,654
Australia	287	443	754	864	4,619
New Zealand	...	...	1) 75	1) 26	437
Exporting Countries:					
India	0	0	0	0	0
Totals	**222,442**	**243,742**	**461,428**	**512,335**	**3,446,295**

Tea. — (Thousand lb.).

COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1) June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries					
Ceylon	16,023	13,644	35,078	31,833	223,530
China	9,575	8,435	18,005	15,432	76,975
India	40,232	35,861	71,088	65,004	316,391
Java and Madura	...	...	1) 9,698	1) 9,167	118,230
Japan	...	...	...	...	3) 30,223
Importing Countries					
Belgium	0	0	2	0	2
Irish Free State	0	4	2	7	22
France	0	0	2	2	18
Gr. Brit and N Irel.	5,600	5,417	12,031	10,547	72,067
Netherlands	7	13	18	20	112
Syria and Lebanon	0	0	0	0	11
Algeria	0	0	4	4	9
Union of S. Africa	...	...	1) 88	1) 4	320
Australia	66	62	117	112	635
New Zealand	...	...	1) 13	1) 9	126
Totals	**71,503**	**63,436**	**146,146**	**132,141**	**838,671**
			IMPORTS.		
Importing Countries					
Germany	725	899	1,488	1,673	10,152
Austria	53	46	97	77	789
Belgium	55	40	123	73	562
Denmark	73	93	174	172	1,120
Spain	...	...	...	...	249
Estonia	9	9	13	13	95
Irish Free State	1,605	1,219	3,201	2,577	21,755
Finland	20	18	33	35	276
France	187	71	401	260	2,855
Gr. Britain and N. Ireland	46,751	42,981	77,795	76,534	486,313
Greece	22	40	236	62	445
Hungary	35	18	51	29	430
Italy	—	—	—	—	—
Latvia	4	4	9	9	71
Lithuania	0	0	0	11	93
Norway	22	33	40	57	362
Netherlands	2,383	2,500	4,383	4,938	28,980
Poland	227	254	390	538	3,461
Portugal	18	22	60	90	443
Sweden	93	66	143	115	1,016
Switzerland	115	141	218	333	1,819
Czechoslovakia	99	99	139	146	1,166
Yugoslavia	24	26	51	49	381
Canada	1,951	2,915	4,217	6,003	44,214
United States	6,312	6,521	12,308	12,350	83,917
Chile	...	...	...	...	4,215
Syria and Lebanon	9	37	22	37	298
Algeria	392	260	1,025	467	2,518
Egypt	...	...	1) 1,506	1) 1,345	13,980
Tunis	300	324	567	569	6,321
Union of S. Africa	...	...	1) 1,373	1) 1,153	13,702
Australia	4,802	3,552	9,191	7,826	41,557
New Zealand	...	...	1) 1,193	1) 1,067	10,666
Exporting Countries.					
China	26	40	60	99	688
India	384	723	602	1,168	5,249
Java and Madura	...	...	1) 64	1) 134	955
Totals	**66,696**	**62,951**	**121,173**	**120,009**	**791,113**

---

1) 3) See notes page 764.

Cacao. — (Thousand lb.).

COUNTRIES	AUGUST		ELEVEN MONTHS (Oct 1-August 31)		TWELVE MONTHS (Oct 1-Sept 30)
	1936	1935	1935-36	1934-35	1934-35
			EXPORTS.		
Exporting Countries					
Grenada	...	..	1) 8,104	1) 8,439	8,836
Dominican Republ.	408	2,579	40,005	62,058	62,618
Brazil	...	...	1) 200,692	1) 163,202	224,663
Ecuador	..	.	1) 40,157	1) 35,651	41,557
Trinidad	615	2 258	26,663	44,035	45,748
Venezuela	.	.	2) 22,805	2) 20,192	28,464
Ceylon	373	767	5,624	7,319	7,893
Java and Madura	.		1) 2,813	1) 2,304	3,283
Cameroon (Fr m t)	855	1,371	49,617	47,435	48,956
Ivory Coast . .	1,448	5,099	106,673	94,120	97,577
Gold Coast . .	36,676	27,335	607,711	520,440	541,032
Nigeria and Cameroon (Brit m t)	8,477	5,540	197,526	180,531	184,186
Saint Thomas and Prince Is . . .	734	1,468	30,062	20,981	22,073
Togoland (Fr m t)	1,936	2,011	20,219	18,995	19,661
Importing Countries					
Germany . . .	0	0	7	88	88
Belgium . .	66	0	108	176	176
France . . .	0	0	9	2	2
Gr Brit and N Irel	348	2,456	7,238	14,562	15,499
Netherlands .	370	406	4,581	3,999	4,643
Australia . . .	11	7	82	408	408
Totals	**52,317**	**51,297**	**1,370,696**	**1,244,937**	**1,357,363**
			IMPORTS.		
Importing Countries					
Germany . . .	12,017	9 837	157,311	151,105	165,896
Austria	776	569	10,977	11 347	12,487
Belgium . . .	1,792	1,631	21,189	17,813	20,651
Bulgaria . .	22	75	1,506	789	805
Denmark . .	520	520	9,676	7,305	8,550
Spain . . .	. .	...	2) 13,287	2) 18,801	22,615
Estonia	86	68	809	653	756
Irish Free State	37	29	3,217	2,639	2 820
Finland . . .	18	20	260	231	256
France .	8,788	6,892	117,723	83,564	90,919
Gr Brit and N Irel	3,832	5,858	271 434	189,362	196,128
Greece	291	212	3,340	2,635	2 840
Hungary	721	527	9,059	7,615	8,638
Italy	—	—	—	—	26,652
Latvia .	77	110	1,109	1,144	1,235
Lithuania . . .	42	53	994	717	758
Norway . . .	481	357	4,716	6,515	6,731
Netherlands .	9,099	7,921	134,859	124,771	133,982
Poland	1,248	926	12,996	14,963	15,845
Portugal	55	90	1,047	1,027	1,124
Sweden . . .	1,012	842	11,043	11,552	12,103
Switzerland .	326	295	16,786	15,443	16,052
Czechoslovakia	1,354	1,343	25,232	20,580	23,199
Yugoslavia . . .	112	249	1,823	1,711	1,867
Canada	1,788	1,689	25,082	24,533	25,790
United States . .	40,609	48,367	529,054	537,916	566,112
Japan . , .	..	..	3) 2,800	3) 2,727	3,311
Australia .	207	2,381	12,313	14,077	14,500
New Zealand . .	...	...	1) 3,080	1) 3,164	3,393
Totals . .	**85,310**	**90,861**	**1,402,722**	**1,274,899**	**1,386,015**

Total Wheat and Flour *)

(Thousand centals).

COUNTRIES	AUGUST		TWELVE MONTHS (Aug 1-July 31)		TWELVE MONTHS (August 1 July 31)
	1936	1935	1935-36	1934-35	1934-35
			a) NET EXPORTS		
Exporting Countries.					
Germany . . .	4)	4)	130	4)	—
Bulgaria	608	0	683	220	—
Estonia	0	24	0	137	—
France	4)	4)	4)	10,509	—
Hungary . .	1,922	256	9,828	7,604	—
Latvia . . .	0	320	926	657	—
Lithuania	0	7	1,274	584	—
Poland . . .	653	209	4,048	2,264	—
Portugal . .	4)	4)	2,161	4)	—
Romania	3,025	309	3,521	2,533	—
Sweden	355	126	1,133	1,069	—
Yugoslavia . .	1,155	9	467	2,551	—
U S S R .	..	...	2) 17,018	2) 939	—
Canada . .	13,691	13,986	152,053	98,518	—
Argentina . .	2,273	6,550	41,674	108,724	—
Chile .	. .	..	2) 1,376	2) 254	—
China	183	4)	4)	4)	—
India	234	55	664	551	—
Syria and Lebanon	42	4)	234	207	—
Algeria . .	522	412	5,875	7,796	—
French Morocco	2	240	2,926	4,550	—
Tunis . . .	62	653	2,743	2,822	—
Australia . .	2,857	2 989	60,133	64,089	—
Totals .	**27,584**	**26,145**	**308,867**	**316,578**	—
			b) NET IMPORTS.		
Importing Countries					
Germany .	57	185	5)	6,085	—
Austria . .	461	203	4,189	5,831	—
Belgium . .	2,361	1,984	23,391	23,843	—
Denmark	278	417	5,379	11,341	—
Spain	. .	...	2) 0	2) 0	—
Irish Free State	639	855	8,971	10,113	—
Finland . .	267	196	2,535	2,476	—
France	15	267	4,786	5)	—
Gr Brit and N.Irel.	8,878	8,466	122,835	119,925	—
Greece . .	922	1,089	8,852	8,728	—
Italy .	—	—	—	—	—
Norway .	311	326	4,555	5,232	—
Netherlands .	922	1,177	12,961	11,588	—
Portugal . .	20	46	5)	408	—
Switzerland . .	6) 732	6) 692	6) 10,000	6) 10,748	—
Czechoslovakia	0	174	1,314	864	—
Total Europe . .	*15,863*	*16,077*	*209,768*	*217,182*	—
United States . .	3,523	1,459	22,767	4,015	—
Ceylon . .	57	66	549	571	—
China . .	5)	836	4,667	12,522	—
Indo China .	60	46	520	511	—
Japan . .	...	...	3) 3,009	3) 1,188	—
Java and Madura	..	. .	1,709	1,532	—
Syria and Lebanon	5)	7	5)	5)	—
Egypt .	...	...	104	1,281	—
Union of S Africa.	...	...	40	545	—
New Zealand . .	...	...	556	331	—
Totals . . .	**19,503**	**18,491**	**243,689**	**239,678**	—

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1 333,333 centals of grain.

a) Excess of exports over imports — *b*) Excess of imports over exports

1) Data up to 31 July — 2) Data up to 30 June. — 3) Data up to 31 May — 4) See Net Imports. — 5) See Net Exports — 6) Wheat only

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE

Statistics received too late for inclusion in the tables and statistics for September already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
JAVA AND MADURA		Aug.	Aug	Aug.	Aug
Maize	1000 centals	1,552	547	...	...
Rice	» »	560	287	...	..
Coffee	1000 lb.	3,605	5,584	...	...
Tea	» »	8,408	7,855	..	...
Cacao	» »	688	679	...	...
GERMANY		Sept	Sept	Sept	Sept
Wheat . . .	1000 centals	...	. .	35	110
Rye	» »	...	..	9	55
Wheat flour . .	» »	...	...	0	0
Barley . .	» »	...	...	7	51
Oats	» »	..	...	7	15
Butter . .	1000 lb	. .	. .	14,381	13,898
Cheese . . .	» »	...	...	5,598	5,736
FRANCE					
Wheat .	1000 centals	104	862	578	1,744
Rye . . .	» »	0	0	9	7
Wheat flour . . .	» »	198	227	90	95
Barley	» »	0	0	963	273
Oats . .	» »	0	0	198	20
Maize . .	» »	0	0	1,393	950
Rice . .	» »	33	24	1,825	580
Linseed . . .	» »	0	0	556	337
Butter	1000 lb	1,698	1,270	161	165
Cheese	» »	1,554	1,592	2,954	3,219
Cotton	1000 centals	40	22	185	262
Wool	1000 lb.	6,852	3,239	9,211	10,631
Coffee	» »	4	0	30,627	30,942
Tea	» »	0	0	302	247
Cacao	» »	0	0	8,845	7,408
GR. BRITAIN AND N. IRELAND					
Wheat	1000 centals	33	51	8,501	8,212
Wheat flour . .	» »	176	223	653	586
Barley	» »	0	0	2,815	2,780
Oats.	» »	0	2	117	207
Maize	» »	234	139	6,680	5,445
Rice	» »	22	9	134	104
Linseed	» »	0	0	545	359
Butter	1000 lb.	505	714	97,577	75,021
Cheese	» »	388	500	23,629	26,594
Cotton	1000 centals	46	60	974	628
Wool	1000 lb.	13,256	12,979	34,282	27,805
Coffee	» »	1,252	1,940	703	739
Tea	» »	5,569	6,215	49,124	43,561
Cacao	» »	1,257	937	5,009	6,766
NORWAY					
Wheat	1000 centals	0	0	121	214
Rye	» »	0	0	337	388
Wheat flour . . .	» »	0	0	24	40
Barley	» »	0	0	82	62
Oats	» »	0	0	0	0
Maize	» »	0	0	227	185
Rice	» »	0	0	7	7
Linseed	» »	0	0	49	15
NORWAY (*cont*)		Sept	Sept	Sept.	Sept.
Butter . . .	1000 lb.	4	0	0	0
Cheese . .	» »	309	289	26	22
Cotton . .	1000 centals	0	0	2	2
Wool	1000 lb	110	90	251	218
Coffee . .	» »	—	—	2,672	3,075
Tea	» »	—	—	29	33
Cacao . .	» »	—	—	798	216
NETHERLANDS					
Wheat	1000 centals	4	2	787	1,224
Rye . .	» »	161	0	82	53
Wheat flour .	» »	7	2	126	64
Barley .	» »	121	31	258	653
Oats .	» »	18	0	20	57
Maize	» »	0	0	1,422	1,836
Rice . .	» »	386	190	465	247
Linseed . . .	» »	4	4	708	604
Butter .	1000 lb.	11,951	7,765	2	18
Cheese .	» »	11,374	12,961	88	68
Cotton .	1000 centals	2	0	75	62
Wool (a)	1000 lb.	567	267	569	93
Wool (b) .	» »	108	66	306	340
Coffee . .	» »	7	531	3,062	7,094
Tea	» »	7	11	2,441	2,249
Cacao	» »	600	644	11,696	9,211
POLAND					
Wheat	1000 centals	238	29	0	0
Rye . . .	» »	648	231	0	0
Wheat flour . .	» »	176	117	0	0
Barley	» »	1,105	697	0	0
Oats	» »	190	201	0	0
Maize	» »	0	0	0	0
Rice	» »	22	20	57	42
Linseed	» »	2	0	0	0
Butter	1000 lb.	3,342	1,539	0	0
Cheese	» »	2	2	11	18
Cotton . . .	1000 centals	0	0	139	128
Wool	1000 lb.	15	0	5,463	2,169
Coffee	» »	2	2	492	646
Tea	» »	2	0	240	276
Cacao .	» »	—	—	1,038	882
SWEDEN					
Wheat	1000 centals	185	423	112	123
Rye	» »	0	86	4	0
Wheat flour . . .	» »	2	2	0	0
Oats	» »	0	0	9	11
Maize	» »	0	0	73	37
Rice	» »	—	—	9	7
Linseed	» »	—	—	104	42
Butter	1000 lb.	4,072	3,832	0	0
Cheese	» »	—	—	311	192
Cotton	1000 centals	—	—	29	20
Wool	1000 lb.	—	—	2,143	1,409
Coffee	» »	—	—	8,964	9,502
Tea	» »	—	—	93	112
Cacao	» »	—	—	1,135	549

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1936	1935	1936	1935
SWITZERLAND	Sept.	Sept	Sept.	Sept.
Wheat . . . . . 1000 centals	0	0	930	1,230
Rye. . . . . . . » »	0	0	2	9
Barley . . . . . » »	0	0	141	152
Oats . . . . . . » »	0	0	324	238
Maize . . . . . . » »	0	0	90	168
Rice . . . . . . » »	0	0	18	49
Butter . . . . . 1000 lb.	0	0	13	11
Cheese . . . . . » »	4,277	4,127	287	322
Cotton . . . . . 1000 centals	0	0	18	22
Wool . . . . . 1000 lb.	29	2	1,153	622
Coffee . . . . . . » »	0	2	2,326	2,105
Tea . . . . » »	2	2	170	185
Cacao . . . . . . » »	—	—	397	608
CZECHOSLOVAKIA				
Wheat . . . . 1000 centals	22	0	2	952
Rye. . . . . . . » »	0	0	2	0
Wheat flour . . . » »	0	0	0	2
Barley . . . . » »	209	71	0	0
Oats . . . . . . » »	15	15	0	0
Maize . . . . » »	0	0	240	258
Rice . . . . . . » »	0	0	79	97
Linseed . . . . . » »	0	0	15	15
Butter . . . . . 1000 lb.	0	0	119	132
Cheese . . . . » »	57	141	313	282
Cotton . . . . 1000 centals	4	4	132	134
Wool . . . . . 1000 lb	22	55	2,359	2,213
Coffee . . . . . . » »	—	—	2,064	2,485
Tea . . . . . . » »	—	—	143	168
Cacao . . . . . . » »	—	—	1,821	2,619

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1936	1935	1936	1935
CANADA	Sept.	Sept.	Sept.	Sept.
Wheat . . . . . 1000 centals	12,432	10,364	0	0
Rye. . . . . . . » »	298	26	0	0
Wheat flour . . . » »	741	776	11	7
Barley . . . . » »	1,283	117	0	0
Oats. . . . . . . » »	373	278	0	0
Maize . . . . . » »	0	0	231	406
Rice . . . . » »	4	0	9	4
Linseed . . . . . » »	0	0	77	0
Butter . . . . . 1000 lb.	216	220	0	44
Cheese . . . . » »	9,910	15,950	117	84
Cotton . . . 1000 centals	—	—	93	60
Wool . . . . 1000 lb.	862	1,241	1,140	809
Coffee . . . . . . » »	11	20	3,029	2,288
Tea . . . . » »	—	—	2,890	2,965
Cacao . . . » »	—	—	2,765	1,259
SIAM				
Rice . . . . . . 1000 centals	5,018	4,076	—	—
GOLD COAST				
Cacao. . . . . . 1000 lb.	31,795	20,591	—	—
NEW ZEALAND				
Butter . . 1000 lb.	27,781	16,372	—	—
Cheese . . . . » »	12,730	10,421	0	0
Wool a) » »	3,898	5,165	...	...
Wool b) . . . » »	3,964	3,977	...	..

a) Wool, greasy — *b)* Wool, scoured.

STOCKS OF CEREALS

Stocks of cereals in farmers' hands in the United States on 1st October.

PRODUCTS	% Stocks total production			Stocks in 1,000 centals		
	1936	1935	1934	1936	1935	1934
Wheat	36.2	42.9	46.1	136,259	154,345	137,460
Oats	87.1	81.3	84.4	218,455	307,851	142,812
Maize (old crop) 1)	7.6	5.5	13.1	97,311	33,990	149,374

1) Data based on maize for grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	October 1936	September 1936	August 1936	October 1935	October 1934
	1,000 centals				
WHEAT.					
Canadian in Canada	86,220	76,397	59,696	134,524	128,504
U.S in Canada	0	0	0	0	509
U.S in the United States	49,709	48,629	40,383	47,822	72,045
Canadian in the United States	11,406	10,985	11,470	12,360	8,533
Of other origin in the United States	0	0	0	22	0
Total	*147,335*	*136,011*	*111,549*	*194,728*	*209,591*
RYE:					
Canadian in Canada	1,408	1,487	1,595	2,178	2,251
U S. in Canada	0	0	0	0	0
U S in the United States	3,648	3,737	3,405	4,708	6,595
Canadian in the United States	295	314	193	0	28
Of other origin in the United States	58	0	0	1,243	7
Total	*5,409*	*5,538*	*5,193*	*8,129*	*8,881*
BARLEY.					
Canadian in Canada	6,882	5,508	2,499	4,062	6,350
U. S. in Canada	0	0	0	0	0
U. S. in the United States	8,511	7,365	4,728	6,681	8,517
Canadian in the United States	583	322	187	60	198
Of other origin in the United States	0	0	0	109	0
Total	*15,976*	*13,195*	*7,414*	*10,912*	*15,065*
OATS:					
Canadian in Canada	5,393	3,734	2,708	3,789	4,037
U. S. in Canada	34	51	0	0	47
U. S. in the United States	16,311	16,596	12,436	13,189	8,407
Canadian in the United States	2	0	0	0	0
Of other origin in the United States	0	0	0	0	0
Total	*21,740*	*20,381*	*15,144*	*16,978*	*12,491*
MAIZE:					
U S. in Canada	6	92	108	2	3,375
Of other origin in Canada	280	203	457	1,257	33
U S. in the United States	2,422	2,541	2,417	1,916	35,730
Of other origin in the United States	137	0	0	255	0
Total	*2,845*	*2,836*	*2,982*	*3,430*	*39,138*

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	Oct 1936	Sept 1936	August 1936	Oct 1935	Oct 1934
	1,000 centals				
Wheat (and flour in terms of grain)	17,362	14,232	12,355	14,309	19,493
Rye.	283	274	336	312	360
Barley	2,848	2,684	1,564	3,936	2,868
Oats	333	278	592	755	1,338
Maize	19,445	14,482	14,654	15,883	14,818

AUTHORITY *Broomhall's Corn Trade News*

Stocks of cereals in commercial elevators and mills in Germany.

PRODUCTS	Last day of month				
	Sept 1936	August 1936	July 1936	Sept 1935	Sept 1934
	1,000 centals				
WHEAT:					
Grain	16,713	13,790	12,125	31,112	35,168
Flour for bread	1,768	1,967	1,828	2,538	2,756
TOTAL 1) . . .	*19,169*	*16,522*	*14,663*	*34,637*	*38,995*
RYE:					
Grain	15,201	12,039	7 427	28,027	22,827
Flour for bread	1,177	1,041	533	1,616	2,209
TOTAL 1) . . .	*16,932*	*13,569*	*8,208*	30,404	*26,077*
BARLEY	3,532	3,212	2,357	5,245	5,108
OATS.	3,283	2,703	2,302	3,887	1,281

1) Including flour in terms of grain on the basis of the coefficient 1,000 centals of wheat flour = 1,388 89 centals of wheat, 1,000 centals of rye flour — 1,470 59 centals of rye

Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	Oct 1936	Sept 1936	August 1936	Oct 1935	Oct 1934
	1,000 centals				
WHEAT:					
Grain	2,856	4,056	4 632	3,024	8,400
Flour as grain	816	744	768	528	672
TOTAL . . .	*3,672*	*4,800*	*5,400*	*3,552*	*9 072*
BARLEY	1,200	980	1,000	1,040	1,040
OATS	160	176	176	256	272
MAIZE	2,712	2,256	2,328	2,736	3,216

1) Imported cereals
AUTHORITY *Broomhall's Corn Trade News*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	Oct. 1936	Sept. 1936	August 1936	Oct. 1935	Oct. 1934
	1,000 centals				
WHEAT:					
Antwerp	951	583	496	902	2,087
Rotterdam	862	508	530	512	1,670
Amsterdam	17	23	28	12	32
RYE:					
Antwerp	82	54	28	36	193
Rotterdam	20	42	39	61	187
Amsterdam	0	0	0	0	0
BARLEY:					
Antwerp	230	43	40	180	397
Rotterdam	0	4	22	18	209
Amsterdam	0	0	0	1	24
OATS.					
Antwerp	22	11	44	28	47
Rotterdam	0	9	12	3	57
Amsterdam	27	30	32	27	20
MAIZE:					
Antwerp	0	52	20	101	725
Rotterdam	7	15	14	220	573
Amsterdam	2	7	2	4	110

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES. *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	Sept. 1936	August 1936	July 1936	Sept. 1935	Sept. 1934
	1,000 centals				
In consuming establishments	4,143	3,670	4,383	3,498	5,139
In public storage and at compresses	33,244	21,181	19,166	34,919	37,064
TOTAL	*37,387*	*24,851*	*23,549*	*38,417*	*42,203*

Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	Oct. 1936	Sept. 1936	August 1936	Oct. 1935	Oct. 1934
	1,000 centals				
Bombay 1)	2,776	2,760	3,116	1,804	2,864
Alexandria 2)	1,295	484	613	773	1,438

1) Stocks held by exporters, dealers and mills. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal.*

Cotton stocks at Alexandria on 31st August, according to varieties.

Description	1936	1935	1934	1933
	1,000 centals			
Sakellaridis	109	166	273	805
Ashmuni-Zagora	168	160	535	728
Maarad	47	16	38	62
Giza 7	36	34	29	19
Other varieties	124	62	89	92
TOTAL . . .	*484*	*438*	*964*	*1,706*

AUTHORITY: *Commission de la Bourse de Minet-el-Bassal.*

Stocks of cotton in Europe.

Location, Description	Thursday or Friday nearest 1st of month				
	Oct. 1936	Sept. 1936	August 1936	Oct. 1935	Oct. 1934
	1,000 centals				
Great Britain:					
American	1,121	1,123	1,391	643	1,436
Argentine, Brazilian, etc.	971	841	599	184	972
Peruvian, etc.	283	229	165	330	529
East Indian	308	323	354	148	317
Egyptian, Sudanese	787	863	852	848	1,262
W. Indian, W. and E. African, etc.	148	156	163	89	300
TOTAL . . .	*3,618*	*3,535*	*3,524*	*2,242*	*4,816*
Bremen:					
American	363	442	550	437	1,427
Other	239	282	282	320	232
TOTAL . . .	*602*	*724*	*832*	*757*	*1 659*
Le Havre:					
American	393	356	468	236	537
French colonies	27	26	20	20	37
Other	166	184	183	85	99
TOTAL . . .	*586*	*566*	*671*	*341*	*673*
Total Continent 1):					
American	897	1,037	1,410	955	2,365
Argentine, Brazilian, etc.	331	393	283	284	152
East Indian	192	221	237	164	176
Egyptian	93	109	169	110	114
W. Indian, W. and E. African, etc.	139	132	168	131	188
TOTAL . . .	1,652	*1,892*	*2,267*	*1,644*	*2,995*

1) Includes Bremen, Le Havre and other Continental ports.

AUTHORITIES: *Liverpool Cotton Ass.* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated The monthly averages are based on the weekly quotations, and the annual on the monthly)

Description	16 October 1936	9 October 1936	2 October 1936	25 Sept 1936	18 Sept 1936	Average Sept 1936	Average October 1935	Average October 1934	Average Commercial Season 1) 1935 36	Average Commercial Season 1) 1934 35
Wheat.										
Budapest (*a*) Tisza wheat 78 kg p hl (pengo p quintal)	17 83	17 35	17 02	16 85	16 37	15 98	17 86	16 33	16 78	16 67
Braila Good quality (lei p quintal)		465	460	475	450	7) 457 1/2	417	n q	* 460	* 402
Winnipeg No 1 Manitoba (cents p 60 lb)	114 5/8	111 3/8	109 5/8	110 1/4	105 3/8	103 7/8	91 5/8	78 3/8	85	81 7/8
Chicago No 2 Hard Winter (cents p 60 lb)	121 1/8	120	121	123 1/4	n. 120 1/4	8) 120	122 3/4	n 105 1/2	109 3/4	104 1/4
Minneapolis No 1 Northern (cents p 60 lb)	139	138 1/4	136 3/8	138 1/2	134 7/8	134 1/2	128 1/2	111 1/2	119 1/2	110 7/8
New York No 2 Hard Winter (cents p 60 lb)	134	132 1/2	130 1/2	131 3/4	128 3/4	128 [illegible]/4	138 1/8	113 3/8	124 1/4	113 1/8
Buenos Aires (*a*) Barletta 80 kg p hectol (paper pesos p quintal)	12 00	11 60	11 00	11 00	11 00	11 06	9 01	6 55	9 53	6 86
Karachi White Karachi 2 % barley 1 % impurities (rupees p 656 lb)	31-6 0	29 12 0	29 12 0	30-12-0	29-5-0	9)28 15 0	25-13-0	20-11-3	24-7-6	22-5-9
Berlin Home grown (free at Brandenburg stations Rm p quintal) 2)	19 80	19 80	19 80	19 60	19 60	19 60	19 80	19 80	20 53	20 29
Hamburg (c i f Rm p quintal)										
No 1 Manitoba	12 22	11 85	11 60	12 08	11 69	11 34	10 19	8 44	9 51	8 95
Barusso (80 kg p hl)	11 03	10 53	10 48	10 86	10 64	10 67	8 46	6 28	8 74	6 50
Antwerp (francs p quintal)										
Home grown	6) 120 00	6) 120 00	6) 121 00	6) 120 00	6) 114 00	6) 116 00	92 25	64 10	100 90	69 10
No 1 Manitoba (Atlantic) (in bond)	141 00	138 00	135 00	137 00	126 00	127 10	117 00	74 85	100 80	86 10
Barusso (in bond)	130 00	128 00	124 50	130 00	128 00	127 75	101 75	51 70	103 10	60 90
Paris Home grown (delivery regional depots 76 kg p hl frs p quintal) 3)	145 00	145 00	145 00	144 00	144 00	144 00	82 85	111 00	89 95	91 50
London (Mark Lane) Home grown (sh p 504 lb on the farm)	39 6	39	37/6	37/-	34 9	34/0 3/4	27 9 3/4	21/9	27/5 1/4	22/4 1/2
Liverpool and London (c i f parcels shipping current month sh p 480 lb)										
French (on sample)	n q	n q	n q	n q	n q	n q	n q	19/11 1/2	* 25/	* 19/8
South Russian (on sample)	n q	n q	n q	n q	n q	n q	30 5 1/2	n q	* 29/-	n q
No 1 Northern Manitoba (Atlantic)	43 1 1/2	41 5 1/4	40 1 1/2	40 7 1/2	38 10 1/2	37/11 1/2	34 11 1/2	30/7 1/2	32/9	31/7 3/4
No 1 Northern Manitoba (Pacific	42 10 1/2	41 6	40 1 1/2	n 40 7 1/2	39 3	38 1	34 10 1/4	30 3	32/5 1/4	31/2 3/4
No 3 Northern Manitoba (Pacific)	41 6	39 9	38 7 1/2	39/3	37 7 1/2	36/8 1/2	32/4 1/4	27 8 1/4	30/5 1/4	28/5 1/4
White Pacific	n q	n q	n q	n q	36 6	* 35 8	n q	n q	n q	n q
Rosafé (afloat) 4)	10)36 7 1/2	10)35 4 1/2	10)34 7 1/2	10) 35 9	10) 34/	10) 34 1	* 30 9 3/4	21/3	* 28/9	22/3 1/2
White Karachi choice	41	39 10 1/2	39 9	40 3	39	38 3	n q	27/4 1/2	* 31 7 1/2	* 29/3
West Australian (cargoes)	42 1 1/2	41 3	40 6	41/-	39 9	39/5 1/4	* 32 7 1/2	26 9	* 30/2 1/2	26/3 3/4
New South Wales (cargoes)	n 41/7 1/2	40/9	40 1 1/2	40 6	39 1 1/2	38 7 3/4	30 11	24 6	* 29 9	* 25/7
Milan (*c*) Home grown soft Buono mercantile 76 78 kg p hl (lire p q) 5)	123 00	123 00	123 00	123 00	123 00	123 00	110 25	87 25	114 20	95 80
Genoa Sicilian Durum (c i f lire p quint)	n q	n q	n q	n q	n q	n q	n q	109 00	n q	* 113 05
Genoa (c i f U S $ p quintal)										
No 2 Manitoba (Pacific)	n q	n q	n q	n q	n q	n q	n q	3 35	n q.	* 3 38
No Canadian Durum 1	n q	n q	n q	n q	n q	n q	n q	4 08	n q	* 4 09
Bahia Blanca 79 kg p hl (sh p 1000 kg)	n q	n q	n. q	n q	n q	n q	n q	111 6	n q	*111/-
Rye.										
Berlin Home grown (free at Brandenburg stations Rm p quintal) 2)	16 10	16 10	16 10	15 90	15 90	15 90	16 10	15 80	16 68	16 29
Hamburg (c i f, Rm p quintal) Plata 72 73 kg p hl	7 92	7 31	7 15	7 24	6 67	6 67	5 28	6 28	5 27	5 76
Budapest Pest rye (pengo p quintal)	13 85	13 60	13 10	12 70	12 55	12 50	15 51	12 06	14 45	12 08
Warsaw Good quality (zloty p quintal)	11) 19 62	11) 19 37	17 38	17 38	15 62	15 56	13 12	17 00	13 25	14 82
Winnipeg No 2 (cents p 56 lb)	72 1/4	70 1/8	68 1/2	70 1/4	68 1/8	68 1/8	42 5/8	56	43 1/4	52 7/8
Minneapolis No 2 (cents p 56 lb)	84 1/4	86 1/4	84 1/2	87	84 1/4	84 7/8	52 3/8	75 3/8	53 1/2	67 7/8
Groningen (*c*) Home grown (fl p quintal)	8 10	8 20	n q	7 85	7 80	* 7 61	6 72	7 13	* 7 08	7 35

---

* Indicates that the product was not quoted during part of the period under review — n q — *not quoted* — n = *nominal* — *a*) Thursday prices — *b*) Saturday prices — *c*) Prices on preceding Tuesday

1) August July — 2) From 16 Aug 1934 for wheat and July 1934 for rye fixed producers prices for the *price region* of Berlin city See *Govt Measures*, No 2 p 57 and this *Crop Report* p 609 — 3) Until 25 Dec 1934 minimum prices on the farm increased by transport costs, Jan Aug 1935, spot quotations in the free market Sept 1935 Aug 1936 prices in the regulated market delivery current month subsequently fixed producers prices (see note on p 691) — 4) Aug Dec 1934, 64 lb p bushel then 63 ½ lb — 5) See note p 609 (*Crop Report*, August 1936) — 6) New crop — 7) 11 Sept 460, 4 Sept 445 — 8) Revised prices 11 Sept 119 4 Sept 118 1/4 28 Aug 114 3/4, Aug Average 119 1/8 — 9) August average (revised) 28-12-6 — 10) Shipping Jan Feb — 11) Prices of export rye

Description	16 October 1936	9 October 1936	2 October 1936	25 Sept. 1936	18 Sept. 1936	Average				
						Sept. 1936	October 1935	October 1934	Commercial Season 1) 1935-36	1934-35
Barley.										
Warsaw: Malting, good quality (zloty p. quintal)	27,25	26.00	23.75	23.25	22.00	21.69	17.00	21.87	* 15.97	19.60
Braila: Average quality (lei p quintal).	...	285	260	260	245	6) 240	252	271	* 237	* 244
Prague: Malting, av qual. (crs p. quintal) 2)	128.00	128,00	128,00	126.50	126.50	126.50	128.00	128.00	* 131.70	131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	58 5/8	58	62 7/8	65 3/4	59 1/8	58	31 7/8	54	34 3/4	45 3/8
Chicago Feeding (on sample; cents p. 48 lb.)	80	81 1/2	79	78	70	7) 69 3/4	46 1/2	79 3/4	45 1/4	72 1/2
Minneapolis: No. 2 Feeding (c. p. 48 lb.) 3)	80 1/2	82 1/2	82 1/2	82 1/2	78 1/2	77 1/4	40	73 3/4	39 1/8	67 1/8
Berlin: Home grown fodder (free at Brandenburg stations; Rm p. quint.) 4).	16.40	16.40	16.40	16.20	16.20	16.20	16.40	15,70	17.08	16.16
Antwerp. Danubian (in bond; francs p q.)	106.00	98.00	95.50	94.50	91.00	92.60	73.85	70,85	74.10	69.45
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	41/-	41/-	41/-	41/-	43/6	41/7 1/2	43/-	43/6	38/3	38/-
Liverpool and London (c.i f., parcels; shipping current month; sh. p 400 lb.):										
Danubian, 3 % impurities	22/5 1/4	22/3	21/3	20/3	19/9	19/6	n. q.	n. 22/-	* 15/3	* 19/2 1/4
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	15/3 1/4	n. q.	* 14/10	n. q.
Canadian No 3 Western	26/7 1/2	26 1 1/2	26/-	27/4 1/2	24/7 1/2	24/4 1/2	16/9 1/2	22/9	18/0 1/2	21/10 1/2
Californian malting (sh. p 448 lb.)	40/9	41/-	40/6	40/-	39/-	36/9	25/4 3/4	n 35/6	24/8 3/4	* 31/6
Plata (64-65 kg p. hl)	8) 22/9	8) 21/6	8) 21/-	8) 20/3 3/4	8) 19/4 1/2	8) 19/5	15/9	8) 20/2 1/2	15/11 1/2	18/4
Persian (Iraquian)	9) 22/3	9) 21/1 1/2	9) 21/-	10) 20/-	10) 19/3	10) 19/2 1/4	11) 15/6 3/4	21/2 1/4	15/4 1/4	18/6
Groningen *a*): Home-grown, winter (fl. p. q.)	7.62	7,37	n. q.	5.72	5.50	* 5.65	4.83	5.43	4.91	5.30
Oats.										
Braila: Good quality (lei p. quintal).	...	n. q.	n. q.	n. q.	n. q.	12) * 218	309	n. q.	* 294	n. q.
Winnipeg: No. 2 White (cents per 34 lb)	44 3/8	44 7/8	45 5/8	46 1/2	44 3/4	45	34 1/4	41 1/2	34 3/4	42 3/8
Chicago No. 2 White (cents per 32 lb)	44 3/4	44 1/4	44 3/8	46 1/2	47	13) 45 7/8	32 1/2	54 3/8	32 1/4	50 7/8
Buenos Aires *b*). Current quality (paper pesos p. quintal)	6.20	6,10	5.90	5.90	5.95	5.85	6.63	5.41	* 6.38	5.39
Berlin: Home-grown (free at Brandenburg stations; Rm. p quint.) 4).	16.00	16.00	16.00	15,80	15.80	15.80	16.00	15.90	16.79	16.39
Paris: Home-grown, black and other (delivery regional depots; frs. p. quintal).	116.00	110.00	n q.	99.25	95.75	95.10	53.25	54.25	66 40	48.50
London (Mark Lane): Home-grown white (sh p. 356 lb., on farm)	20/-	19/6	19/6	19/6	19/3	18/11 1/4	19/6	20/-	18/7 1/2	20/10
Liverpool and London (c i f. parcels, shipping current month; sh. p. 320 lb):										
Canadian, No. 2 Western (Pacific) 5).	22/6	22/4 1/2	22/3	22/7 1/2	22/3	22/-	18/4 3/4	21/0 1/2	18/7 1/2	20/10 1/2
Plata (f. a. q)	n. 16/-	15/1 1/2	14/9	14/11 1/4	14/10 1/2	14/9	17/2 1/2	12/11	14/5	13/0 1/2
Milan (*c*) (lire p. quintal):										
Home-grown	94.50	94.50	94.50	93.50	93.50	93.25	99.00	57.50	* 97.10	61.25
Foreign	95.00	95.00	95.00	95.00	95.00	94.60	93.00	57.50	92.60	60.45
Maize.										
Braila: Average quality (lei p quintal).	...	275	275	275	275	13) 274	217 1/2	207	238 1/2	* 220
Chicago: No. 3 Yellow (cents p 56 lb).	109 1/2	109 1/4	106 1/2	113	118 5/8	14) 113 3/4	83 3/4	* 78	72 5/8	78 1/8
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	6.00	5.92	6.00	6.02	6.00	6.00	4.53	6.38	4.51	5.72
Antwerp (in bond, francs p quintal):										
Yellow Plata	80.50	78.50	78.75	85.00	86.00	85.95	56.10	51.00	56.25	53.70
Cinquantino (Argentine " Cuarentino ")	91.00	93.00	90.25	90.50	87.00	87.25	62.00	56.75	60.45	58.25
Liverpool and London (c i.f., parcels; shipping current month; sh. p. 480 lb.):										
Danubian	n. q.	23/6	24/1 1/2	n. q.	n. q.	n. q.	n. q.	21/9	* 16/11	* 21/-
Yellow Plata	22/7 1/2	22/3	22/3	22/9	22/10 1/2	22/7 1/2	16/8 1/2	20/8 1/2	16/0 1/2	19/8 1/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	17/6 3/4	23/1 1/2	* 17/-	21/4 1/2
Milan (*c*): « Alto Milanese » (lire p. quint.)	16) 84.00	16) 84.00	16) 84.00	16) 84.00	16) 84.00	16) 86.00	80.60	49.50	81.75	58.50

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. (From August 1935, barley of good quality, not less than 68 kg. per hl.) see note p. 609. — 3) From August 1935, only delivered barley quoted. — From 16 July 1934 for fodder barley; from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, No. 2, p. 57, and, this *Crop Report* p. 609. — 5) Aug.-Dec. 1934 and from May 1935, Atlantic. — 6) 11 Sept.: 235; 4 Sept.: 220. — 7) 11 Sept.: 66; 4 Sept.: 65; 28 Aug.: 61; 21 Aug.: 60; Aug. average: 59 3/4. — 8) New crop, shipping Jan.-Feb. — 9) Shipping Dec. — 10) Shipping Oct. — 11) Shipping Jan-Feb. — 12) 11 Sept.: 220; 4 Sept.: 216. — 13) 11 Sept.: 45 1/2. — 14) 11 Sept.: 270; 4 Sept.: 277. — 15) 11 Sept.: 113 1/4. — 16) " Alto " and " Basso Milanese ".

DESCRIPTION	16 Oct 1936	9 Oct 1936	2 Oct 1936	25 Sept 1936	18 Sept 1936	Average				
						Sept 1936	Oct 1935	Oct 1934	Commercial Season 1)	
									1935	1934
Rice (milled).										
Valencia (*a*) No 3 Belloch (pesetas p quintal)	n q	n q	n q	n q	n q	n q	55 90	49 65	56 60	46 95
Milan (*b*) (lire p quintal)										
Vialone, oiled	170 00	170 00	170 00	172 50	172 50	172 75	161 85	149 50	159 20	177 10
Maratelli, oiled	148 00	148 00	148 00	151 50	154 00	154 75	144 60	126 50	136 60	138 05
Originario, white	124 50	124 50	124 50	125 00	125 00	125 00	127 85	98 35	121 75	102 80
Rangoon (rupees and annas p 7500 lb)										
No 2 Burma	240-0	242-8	242-8	247-8	247-8	248-12	277-8	246-14	253-8	201- 2
Small mills specials	222-8	220-0	220-0	225-0	227 8	277- 8	245-3	217-10	227-4	174-12
Big mills specials	217-8	217-8	215-0	220-0	222 8	220-10	243-0	207-0	219-9	167-13
Saigon (Indo chinese piastres p quintal)										
No 1 Round white 25 % brokens			.	5 21	5 19 [3]	5 22	4 54	3 46	4 18	3 25
No 2 Japan 40 % brokens			..	4 88	4 86 [4]	4 89	4 22	3 30	3 96	3 05
Marseilles (*a*) No 1 Saigon (c i f frs p quintal)	71 50	70 00	69 00	61 00	70 00	64 60	63 80	48 50	54 80	45 95
London (*a*) (c i f shillings p cwt)										
No 3 Spanish Belloch oiled	n q	n q	n q	n q	n q	n q	* 12/4½	n q	* 12/7	* 10/9
No 1 Italian good oiled	n q	n q	n q	n q	n q	n q	n q	12 7½	* 14/0½	11/10¼
American Blue Rose extra fancy	17/7½	18/-	19/-	n q	n q	n q	15/4¼	17/8½	* 15/5¾	17/3½
No 2 Rangoon or Bassein (Burma)	7/9	7/10½	7/10½	7/10½	8 1½	8/3¾	8 6	8/0¾	7/8	6/7¾
No 1 Saigon	7/9	7/10½	8/-	8/7½	9	8 10¾	8/3	6/10¾	7/5¼	6/3¼
Siam Super white	9/1½	9/1½	9/1½	9/4½	9/4½	9 2¼	9/10½	8/1	9/2¾	7/5
Tokyo Chumai (brown Japanese average quality yen p koku)	29 20	29 00	30 70	31 00			31 32	30 30	29 87	26 09
Linseed.										
Buenos Aires (*a*) Current quality (paper pesos p quintal)	14 02	14 10	14 10	14 57	14 75	14 77	13 30	12 65	12 28	12 74
Bombay Bold (rupees p cwt)	n q	7-0-6	7-0-6	7-2 0	7 7-0	7-6-4	6-14-9	6-3-10	6-10-8	6-7-8
Antwerp Plata (in bond frs p quint)	165 00	164 50	164 00	172 00	173 00	172 50	151 60	107 00	127 55	107 60
London (c i f £ p long ton)										
Plata (delivery Hull)	11- 8-9	11-7-6	11-10-0	11 13 9	11-17-6	11-15-11	10-12-6	10-0-11	9-13-2	10- 0-8
Bombay Bold	13-11-3	13-7-6	13-10-0	13-15-0	13-18-9	13-18- 1	13- 3-5	11-8- 9	12- 5- 5	11-17-0
Duluth No 1 Northern (futures market quotations cents p 56 lb)	[5] 200½	[5] 202	[5] 204½	206	208	207¼	[5] 174⅞	[5] 184¼	172¼	186⅛
Cottonseed.									1935 36	1934-35
Alexandria (piastres p ardeb)										
Upper Egypt	67 7	67 6	68 6	69 4	68 6	69 4	63 7	45 8	69 7	62 0
Sakellaridis	[6] 63 3	[6] 64 2	[6] 64 9	[6] 65 7	[6] 64 1	[6] * 64 9	60 6	43 3	* 64 0	57 7
London Sakellaridis (c i f delivery Hull £ p long ton)	n 6-12-6	n 6-11-3	n 6-13-9	n 6-16-3	n 6-17-6	n 6-17-2	n 6-11-3	4-13-9	n 6-13-7	5-18-7
Cotton.										
New Orleans Middling (cents p lb)	12 45	12 30	12 40	12 17	12 38	12 27	11 16	12 62	11 64	12 47
New York Middling (cents p lb)	12 45	12 29	12 53	12 27	12 38	12 31	11 27	12 52	11 74	12 46
Bombay (rupees p 784 lb)										
Broach f g (futures market quotations)	[7] 222-12	[7] 218-0	[7] 219-12	[7] 213-4	[7] 221-0	216-2	[7] 231-8	[7] 209-8	210-4	230-4
Broach f g (spot)	n q	n q	n q	n q	n q	n q	215 4	208-12	* 220-12	233-4
Oomra fine (spot)	n q	n q	n q	n q	n q	n q	206-0	180-8	198-12	208-8
Alexandria (talaris p kantar)										
Sakellaridis f g f	19 05	18 10	18 15	17 30	17 45	17 41	15 12	14 44	16 11	15 20
Ashmuni Zagora f g f 2)	13 30	13 10	13 40	12 80	12 80	12 74	12 24	12 66	13 61	13 34
Bremen Middling (U S cents p lb)	14 49	14 38	14 71	14 37	14 54	14 42	13 39	14 34	13 88	14 38
M g Broach f g (pence p lb)	n 5 65	n 5 65	n 5 65	n 5 65	n 5 65	n 5 64	n 6 41	n 5 42	n 5 86	n 6 04
Le Havre Middling (Gulf frs p 50 kg)	354 50	344 00	335 00	277 00	253 50	258 25	235 10	250 25	240 00	250 75
Liverpool (pence per lb)										
Middling fair	n. 8 09	n 7 96	n 8 12	n 7 83	n 8 08	n 7 95	n 7 49	n 7 98	n 7 58	n. 7 95
Middling	6 99	6 86	7 02	6 73	6 98	6 85	6 49	6 93	6 53	6 94
São Paulo g f	7 04	6 91	7 02	6 78	6 98	6 86	6 74	6 88	6 81	6 99
Broach good staple, f g	n 5 64	n 5 61	n 5 71	n 5 49	n 5 61	n 5 53	5 65	5 12	5 43	5 61
C P Oomra superfine	5 80	5 77	5 87	5 65	5 77	5 69	5 74	5 13	5 61	5 73
Egyptian Sakellaridis f g f	10 90	10 61	10 57	10 15	10 24	10 36	8 34	8 17	9 18	8 52
Upper Egyptian, f g f	7 58	7 62	7 61	7 37	7 60	7 53	7 10	7 15	7 49	7 55

---

* Indicates that the product was not quoted during part of the period under review — n q = *not quoted* — *n* = *nominal* — *a*) Thursday prices — *b*) Saturday prices

1) Cottonseed Sept Aug, cotton Aug July — 2) From August 1935 Ashmuni f g f quality only — 3) 11 Sept 5 27, 4 Sept 5.22. — 4) 11 Sept 4 94, 4 Sept 4 89 — 5) December futures — 6) New crop — 5) April May futures

DESCRIPTION	16 Oct. 1936	9 Oct. 1936	2 Oct. 1936	25 Sept 1936	18 Sept. 1936	AVERAGE				
						Sept. 1936	October 1935	October 1934	Commercial Season 1935	Commercial Season 1934
Bacon.										
London, Provision Exchange (*a*) (shillings, p. cwt):										
English, No. 1, lean sizable	93/-	93/-	91/-	91/-	94/6	95/4	92/-	86/3	89/11	91/2
Danish, No. 1, sizable	100/-	100/-	100/-	100/-	100/-	100/-	92/-	86/9	88/6	87/11
Irish, No. 1, sizable	94/-	93/6	92/-	92/-	94/6	93/4	91/6	86/1	88/8	90/5
Lithuanian, No 1, sizable	90/-	90/-	87/-	87/-	87/-	88/-	88/6	81/-	82/1	82/-
Dutch, No. 1, sizable	97/-	97/-	94/-	94/-	94/-	94/6	90/3	83/-	85/4	84/-
Polish, No 1, sizable	90/-	90/-	87/-	87/-	87/-	88/-	86/6	80/-	80/-	80/11
Swedish, No. 1, sizable	97/-	97/-	94/-	94/-	94/-	94/6	90/3	82/6	85/2	84/4
Canadian, No 1, sizable	90/-	90/-	87/-	87/-	87/-	88/-	86/6	80/7	79/3	80/3
Butter.										
Copenhagen (*b*) Danish (crs. p. quint.).	214.00	224.00	220.00	210.00	218.00	220.50	232.40	189.00	192.30	160.75
Leeuwarden, Commission for butter quotations (*b*) Dutch (cents p. kg) 1).	61	64	66	53	58	57 1/2	65	43	48 7/8	44 3/8
Antwerp (frs p. kg.)	18.60	18.50	18.20	20.05	19.25	19.30	20.95	19.90	17.90	18.00
Germany (*c*)(fixed prices, Rm p. 50 kg.) 2):										
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130.00	131.00	130.00	129.04
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	123.00	122.00	123.00	120.87
London (*d*). English creamery, finest quality (shillings p cwt.)	130/8	130/8	130/8	133/-	137/8	138/10	140/11	106/10	119/6	109/6
London, Provision Exchange (*a*) (shillings, p. cwt)										
Danish creamery, unsalted	121/6	126/-	125/-	120/6	124/-	125/1	131/9	111/4	112/9	98/8
Estonian, unsalted	n. q.	n. q.	n. q.	96/-	n. q.	* 102/8	n. q.	61/10	* 81/11	* 67/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	61/9	* 86/1	* 69/3
Dutch creamery, unsalted	89/-	94/6	97/-	95/-	99/6	101/6	115/7	71/-	93/4	80/4
Argentine, finest, unsalted	n. q.	94/-	94/-	91/-	96/-	98/9	n. q.	n. q.	* 82/10	* 68/3
Siberian, salted	88/6	93/6	97/-	94/-	102/6	102/7	* 113/10	62/1	* 90/7	* 66/-
Australian, finest, salted	94/6	99/6	103/-	99/6	105/6	106/10	119/-	67/-	89/7	70/2
New Zealand, finest, salted	95/6	101/-	103/6	99/-	105/6	107/1	119/4	67/-	91/11	72/7
Cheese.										
Milan (lire p. quintal).										
Parmigiano-Reggiano, 1st quality, production 1934 3)	6) 800.00	850.00	850.00	850.00	850.00	847.25	758.75	760.00	775.45	724.30
Parmigiano-Reggiano, 1st quality, production 1935 3)	7) 850.00	785.00	785.00	785.00	785.00	785.00	701.25	622.50	734.25	614.60
Green Gorgonzola, mature, choice	650.00	650.00	650.00	637.50	630.00	626.85	562.50	415.00	508.90	412.60
Rome: Roman Pecorino, choice (lire p q) 4)	...	...	8) 975.00	8) 975.00	8) 975.00	8) 975.00	8) 1.095.00	8) 662.00	865.50	658.65
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg)	18.50	19.00	17.75	15.50	16.50	16.25	19.87	17.37	14.84	18.64
Gouda·Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p. 50 kg.)	24.00	24.00	24.00	22.00	22.00	21.75	27.00	24.62	19.75	22.52
Kempten (*c*) (Rm. p 50 kg):										
Soft cheese, green 20 % butterfat.	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	23.25
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	80.00	72.25	77.00	71.50
London, Provision Exchange (*a*) (shilling, p. cwt.):										
English Cheddar, finest farmers	82/-	83/-	82/-	79/-	79/-	78/9	65/6	85/-	* 77/8	* 83/5
English Cheshire, Nat. Mark Selected.	81/8	84/-	81/8	81/8	77/-	77/7	80/9	83/5	80/5	83/4
Italian Gorgonzola (*d*).	9) 89/10	9) 89/10	9) 91/-	9) 89/10	9) 88/8	9) 89/10	110/2	81/8	* 102/2	82/9
Dutch Edam, 40 + (*d*)	52/6	51/6	52/-	52/-	51/-	50/7	61/10	51/-	44/4	54/5
Canadian, finest white	68/6	69/-	69/6	69/6	69/6	70/4	60/4	51/3	60/3	54/-
New Zealand, finest white	68/3	69/9	70/6	67/3	67/6	68/4	59/11	49/3	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week

1) Home prices are increased by a consumption tax which was 0 80 from 1 Aug. to 26 Sep. 1936, and 0.75 from 27 Sept. onwards. — 2) See note page 306 of the *Crop Report* April 1934. — 3) Prices of 1934 cheese are compared, for the preceding years, with those of cheese made in 1933 and 1932, respectively; prices of 1935 cheese with those of cheese made in 1934 and 1933. The yearly averages refer to the periods from Sept. to August. — 4) From 27 September 1935, export prices. — 5) August (revised): 60. — 6) Choice quality, f. o. r. producer's station. — 7) Choicest quality, f. o. r., packing included. — 8) New make. — 9) Danish blue.

Eggs.

Description	16 Oct. 1936	9 Oct 1936	2 Oct 1936	25 Sept 1936	18 Sept 1936	Average Sept 1936	Average Oct. 1935	Average Oct 1934	Commercial Season 1) 1935	Commercial Season 1) 1934
Antwerp, auction Belgian, average qual (frs p 100)	70 00	71 00	76.00	79 00	68 00	65 25	77 00	68 50	48.35	42.80
Denmark (*a*) Danish for export (crs per quintal)	150.00	136 00	136 00	136 00	136 00	128 50	156 00	150 00	106.75	103.60
Roermond, auction Dutch, 57/58 gr each, white (fl p 100)										
Fixed price for export into Germany	...	n. q.	n q.	3 90	3 90	6) 3 77	4 40	4.25	3 75	3.96
Price for other destinations	...	4 60	4 50	4 10	3 90	6) 3 82	4.60	5.32	2.97	3.34
Warsaw (*b*) Polish, average weight 50 gr each, various colours (zloty p 1440, including box)	...	. .	.	105 00	105 00	92 37	123 00	116 19	104.43	106.50
Berlin (*c*) German, big, new laid (Rm p 100)										
marked G I S 65 gr each	12 00	12 00	12 00	12 00	12 00	12 00	11.50	11 06	10.57	10.37
marked « G I B » 55/60 gr each	10 00	10 00	10 00	10 00	10 00	10 00	10 00	10 00	9.34	9.03
London, Egg Exchange (*d*) (sh p great hundred)										
English, National Mark, specials	22/-	19/6	17/6	18 6	19/6	18/6	19/9½	20/1½	15/9	15/5
Belgian 15½ lb p 120	n. q	n q	n q	n q	10/10½	* 10/9	* 11/8	n q	*11/3¼	* 11/0¾
Danish 18 lb p 120	14/-	13/10½	13/9	13/6	13/1½	13/4¾	14/8	15/3	12/5	12/5¾
Northern Irish, 18 lb p 120 2)	n. q.	n q	17/4½	17/4½	17 6	17/1½	19/4¾	17/4	15/1½	* 12/9½
Dutch all brown 18 lb p 120	16/4½	15/9	15/3	15/10½	14/9	14/11½	16/9	15/11¼	13/2¼	13/5
Polish 51/52 grams each	8/4½	7/9	7/7½	7/3	6/8¼	6/11½	8/2	7/9	* 7/1¼	6/10¾
Chinese, violet	9/3	9/-	8/7½	8/7½	8 7½	8/7¾	9/5½	8/6	* 8/10½	* 8/3¼
Australian, 16 lb p 120	13/-	12/6	12/1½	12/4½	n q	* 12/3	12/9	12/1¼	*11/2½	* 11/5¾

Maritime Freights

(RATES FOR ENTIRE CARGOES)

Shipments of Wheat and Maize.

Description		16 Oct. 1936	9 Oct 1936	2 Oct 1936	25 Sept 1936	18 Sept 1936	Average Sept 1936	Average Oct. 1935	Average Oct 1934	Commercial Season 1) 1935-36	Commercial Season 1) 1934-35
Danube to Antwerp Hamburg	(shill per long ton)	19 6	19/6	19/6	18/9	18 6	18/6½	n q	n 13/9	* 14/7	* 13/11
Black Sea to Antwerp Hamb		15/6	15/6	15 6	14/6	14 6	14 1	10/6	10/-	* 10/-	* 9/11
St John to Liverpool 3)	(shill per 480 lb)	n q	n q	n. q	n q	n q	n q	n q	n. q	* 2/0¾	* 1/6
Port Churchill to United Kingdom		3/-	3/-	3	2/10½	2/10½	2 10	n q.	n 2/9	n. q	* 2/9
Montreal to United Kingdom		2/3	2/3	2/3	2/1½	2/1½	2 1¾	--	1/8¼	* 1/11	* 1/6¾
Gulf to United Kingdom 3)		n. q.	n q.	n q.	n q	n q	n q	2/6	2/6	* 2/6	2/6
New York to Liverpool 3)		n q	n q	n q	n q	n q	n q	1/6	1/6	* 1/6	1/6
Northern Range to U K Cont		n q.	n q	n. q	n q	n q	n q	2/-	n. q	1/10	n. q.
North Pacific to United Kingdom (sh per long ton)		24/-	24/-	23/-	22/6	22 6	22 2¼	20/4¾	n 20/6	19/3¾	* 18/1½
La Plata Down River 4) /Bahia Blanca to U K / Continent	(shill per long ton)	18 -	18/-	18/-	18/-	17/10½	17/10	7) * 16/6	15/3	* 16/6½	14/11
La Plata Up River 5) Necochea to U K /Continent		19/9	19/9	19/3	19/3	19/3	19/1	7) 17/9	16/1¼	17/9½	16/2
Western Australia to U K / Continent		28/-	28/-	27/-	27/-	27/-	27/-	26/3½	27/4½	* 26/6	24/6

Shipments of Rice.

Description		16 Oct. 1936	9 Oct 1936	2 Oct 1936	25 Sept 1936	18 Sept 1936	Average Sept 1936	Average Oct. 1935	Average Oct 1934	Commercial Season 1) 1935	Commercial Season 1) 1934
Saigon to Europe	(shill per long ton)	28/6	28/-	28/-	28/-	26 -	26/4¾	25/-	27/3	* 23/5	24/2¾
Burma to U K /Continent		n. q	n. q.	n. q	n q.	n q	n q	n q	n. q.	* 21/8	* 23/3

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review. — n q. *not quoted* — n - *nominal* — *a*) Average prices for weeks commencing on Fridays indicated — *b*) Average prices for weeks commencing on preceding Mondays — *c*) Thursday prices — *d*) Prices on preceding Monday

1) Shipments of wheat and maize Aug -July — 2) From 28 Feb " Extra special " quality — 3) Rates for parcels by liners — 4) " Down River " includes the ports of Buenos Aires, La Plata and Montevideo — 5) " Up River " includes the ports on the Paraná River as far as San Lorenzo Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight — 6) See note page 782 — 7) Minimum rate of freight

AVERAGE MONTHLY PRICES BY COUNTRIES 1)

Groups	Description	Average							
		Sept. 1936	August 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept. 1934	Agricultural year 2) 1935-36	Agricultural year 2) 1934-35
	GERMANY (Prices in Reichsmarks per quintal)								
A I	†Wheat (Berlin) 3)	19.60	20.40	21.40	21.20	20.12	19.53	20.48	20.18
	†Rye (Berlin) 3)	15.90	15.70	16.50	17,50	16.13	15.70	16.71	16.22
	†Barley, feeding (Berlin) 3)	16.20	16.00	16.80	17.80	16.18	* 15.45	16.95	* 16.14
	†Oats (Berlin) 3)	15.80	16.70	17.60	17.40	16.53	16.24	16.73	16.43
	§Potatoes, red (Berlin) 4)	4.30	7) 5.56	7) 8) 9.00	5.27	* 5.02	* 6.00	* 4.88	* 4.95
A II	†Oxen, live weight (Berlin)	84.00	84.00	84.00	84.00	83.33	70.07	83.83	76.28
	Calves, live weight (Berlin)	134.00	128.60	105.60	102.07	94.47	65.07	99.32	68.75
	†Pigs, (220-265 lb.), live weight (Berlin)	101.00	101.00	101,00	101.00	101.73	92.80	101.28	93.87
	Milk, fresh (Berlin)	14.60	14.60	14.60	14.60	14.50	14.50	14.58	14.50
	†Butter with quality mark	260 00	260.00	260.00	260.00	260.00	259.50	260.00	260.12
	†Cheese, Emmenthal variety (Kempten)	160.00	160.00	160.00	160.00	154.00	142.00	159.00	146.75
	†Eggs, new laid, big, marked (per 100) (Berlin)	12.00	12.00	10.35	9.25	11.07	9.68	10.55	10.27
B I	Basic slag (Aachen) 5)	0.242	0.242	0.242	0.230	0.240	0.265	0.235	0.240
	§Superphosphate of lime, 18 % (Hildesheim) 5)	0.314	0.314	0.303	0.288	0.289	0.288	0.288	0.288
	§Potash salts, 38-42 % (mine stations) 5) 6)	6.65	6.65	6.52	6.55	6) 6.61	0.168	6.67	* 6.70
	Sulphate of Ammonia 5)	0.625	0.605	0.585	0.710	0.630	0.630	0.676	0.651
B II	Wheat-bran (Hamburg)	12.25	12.25	12.25	12.25	12.31	12.17	12.26	12.13
	Linseed cake (Hamburg)	16.30	17.30	17.30	17.30	16.63	16 59	17.13	15.62
	Coconut cake (Hamburg)	14.70	17.40	17.40	17.40	16.70	15.91	17.22	15.44
	Groundnut cake (Hamburg)	15.80	16.90	16.90	16.90	16.10	15.17	16.70	14.66
	Crushed soya extraction residue (Hamburg)	15.50	15.50	15.50	15.50	14.67	13.79	15.29	13.19
	BELGIUM (Prices in Belgian francs per quintal)								
A I	Wheat (Antwerp)	116.00	128.25	114.40	108.75	82.15	71.00	98.05	68.60
	Rye (Antwerp)	n. q.	n. q.	69.40	67.05	71.70	68.35	69.85	70.65
	Barley (Antwerp)	n. q.	n. q	88.80	85.45	81.45	71.00	82 75	82.45
	Oats (Antwerp)	91.00	100.75	96.30	95.85	88.35	69.60	92.25	76.25
A II	Oxen, live weight (Curegem-Anderlecht)	490.00	517.00	529.00	511.35	470.00	484.00	483.25	457.00
	Calves, live weight (Curegem-Anderlecht)	737.00	715.00	700.00	691.65	695.00	635.00	717.00	641.00
	Pigs, live weight (Curegem-Anderlecht)	622.00	644.00	655.00	574.35	660.65	439.00	646.00	530.00
	Butter (Antwerp)	19 30	17.30	17.00	1,654.65	1,811.65	1,878.00	1,880.00	1,782.00
	Eggs (per 100) (Antwerp)	65.25	53.00	42.80	36.65	52.35	42.45	52.65	42.80
B I	Basic slag (Brussels) 5)	1.75	1.77	1.70	1.60	1.50	1.35	1.55	1.35
	Superphosphate of lime (Brussels) 5)	2.10	2.15	1.85	1.60	1.60	1.55	1.60	1.50
	Sylvinite-Kainite, 14 % (Brussels)	28.00	28.00	26.50	27.00	20.85	16.65	24.50	14.65
	§Nitrate of soda, 15 ½ % (Brussels)	...	n. q.	n. q.	108.25	98.25	89.25	103.85	93.25
	§Sulphate of ammonia, 20 % (Brussels)	...	n. q.	n. q.	93.00	83.00	74.00	88.60	79.10
B II	Maize, Plata (Antwerp)	86.00	85.25	71.85	63.15	54.20	55.80	57.05	55.55
	Linseed cake (Brussels)	118.00	119.00	88.00	88.35	85.75	92.50	88.30	89.05
	Coconut cake (Brussels)	104.50	104.00	96.00	96.65	95.15	76.15	97.60	85.35
	Groundnut cake (Brussels)	115.00	114.00	96.00	98.65	90.85	78.00	98.15	84.40
	Palm-kernel cake (Brussels)	n. q.	n. q.	n. q.	n. q.	n. q.	83.00	n. q.	* 82.80
	DENMARK (Prices in Danish crowns per quintal)								
A I	Wheat (Copenhagen)	17.10	n. q.	15.22	14.72	12.46	13.08	13.50	11.65
	Barley (Copenhagen)	14.87	13.12	12.62	12.65	12.09	14.32	12.06	13.48
	Oats (Copenhagen)	14.45	14.75	14.90	14.28	12.64	13.68	12.80	13.31
	†Cows, live weight (Copenhagen)	39.00	39.00	37.00	37.00	34.87	24.87	36.17	29.93
A II	†Pigs, live weight	176.00	174.00	166.00	171.53	163.13	162.93	165.75	161.30
	†Butter (Copenhagen)	220.50	225.50	218.60	183.03	193.83	165.37	205.05	179.65
	†Eggs	128.50	104.00	82.00	71.67	106.63	102.33	113.67	104.90

---

* Indicates that the product was not quoted during part of the period under review. — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics.*

1) Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold by the farmer; also of fertilizers (B I) and concentrated feeding stuffs for livestock (B II) bought by the farmer. In cases where the market is not indicated, the price is the average for the country. — 2) July to June. — 3) See notes (2) and (3) on pp. 771 and 772. — 4) From 1935, red and white potatoes. — 5) Prices per unit of fertilizer material in 100 kg — 6) From 16 October 1934, price, at buyer's station, per 100 kg. of potash manure salt 40 %. — 7) F. o. r. producers station. — 8) Early varieties

Groups	Description	Average							
		Sept. 1936	August 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept. 1934	Agricultural year 1935-36	Agricultural year 1934-35
	DENMARK (*continued*)								
B I	Superphosphate 18 %	6.00	6.09	6.35	6.35	6.13	6.12	6.21	6.28
	Potash salts 40 %	12.95	12.82	13.95	13.95	12.43	11.93	13.32	11.85
	Sulphate of ammonia	14.95	15.16	16.25	16.25	15.50	15.40	15.76	15.47
	Nitrate of lime	14 90	15.11	16.20	16.20	15.45	15.30	15.71	15.58
B II	Rye, imported (Jutland)	12.67	13.55	12.80	12.79	10.81	12.67	12.03	11.25
	Maize, Plata (Jutland)	13.50	14.00	14.00	13.79	11.33	13.03	12.62	11.95
	Wheat-bran, Danish (Copenhagen)	12.96	12.17	10.94	11.00	10.69	10.76	10.63	10.80
	Cottonseed cake (Copenhagen)	16.50	16.10	14.58	13.45	13.44	13.73	13.89	14.19
	Sunflower-seed cake (Copenhagen)	16.08	15.37	14.62	12.93	13.36	13.61	13.58	14.13
	Groundnut cake (Copenhagen)	17.88	17.75	16.40	15.57	14.28	14.03	15.11	14.35
	Crushed soya extraction residue (Copenhagen)	16.54	16.50	15.76	14.68	13.12	13.83	14.36	13.71
	FRANCE (Prices in francs per quintal)								
A I	†Wheat (Paris) 1)	144.00	111.15	105.40	97.35	76.60	118.50	87.25	96.50
	Rye (Paris) 2)	n. q.	99.00	n. q.	82.65	55.35	64 00	68.85	* 61.35
	Barley, malting (Paris) 2)	n. q.	98.00	n. q.	84.65	55.35	67 35	69.75	65.65
	†Oats (Paris)	95.10	90.35	85.10	79.85	42.55	56.20	62.45	49.80
	§Wine, red, 10° (hectol.) (Montpellier) 3)	. .	. .	. . .	8.20	4.47	105.35	6 15	6.60
A II	†Beef, dead weight (2nd quality) (Paris)	638.00	659.00	629.00	583 35	496.65	534.00	521.00	488.00
	†Mutton, dead weight (2nd quality) (Paris)	984.00	981.00	959.00	957 65	989.00	1,069.00	994.00	1,032.00
	†Pigs, live weight (Paris)	581.00	666.00	590.00	546.00	388.00	418.00	455.00	370.00
B I	§Basic slag, 18 % (Thionville)	18.55	18.55	18.55	18.55	20.00	22.50	18.90	21.65
	§Superphosphate 14 % (North and East)	26.00	25 15	24.25	24.10	26.90	26.75	24.90	26.75
	§Sylvinite, rich, 18 %	16.30	16.30	16.30	15 30	14.80	15.00	14.90	15.00
	Nitrate of soda (Dunkirk)	79.00	79.00	79.00	79.00	* 73 50	* 80.00	* 76.65	* 82.70
	Sulphate of ammonia 20,4 %	83.00	83.00	83.00	83.00	82 25	* 85 00	81.50	* 85.65
B II	Linseed cake (North)	83.00	81.75	72.00	65 10	55.10	72.40	61 65	67.05
	Coconut cake (Marseilles) 4)	n. q.	87.50	n. q.	* 78.00	58.50	61.35	* 64 65	58.75
	Groundnut cake (Marseilles)	n. q.	n. q.	54.00	52.85	50.00	52.50	52.20	49.15
	GREAT BRITAIN (Prices in shillings and pence: "A" per cwt; "B" per long ton).								
A I	Wheat	7/4	7/9 1/4	7/0 1/4	6/7 3/4	4/11 3/4	5/2	5/11 1/2	5/0 1/4
	Barley, feeding	10/4 1/4	7/10 1/4	6/5 1/2	7/5 1/4	8/3 1/2	9/2 1/4	8/1 1/4	8/3 1/2
	Oats	6/7 1/4	6/10 3/4	6/4 3/4	6/1 1/2	6/8	6/5 3/4	6/2 1/2	6/9 1/2
	§Potatoes (London)	6/1 1/2	* 5/9	n. q.	* 7/11 3/4	6/9	* 6/8	* 7/5 1/2	* 5/8 1/2
A II	†Beef, dead weight (London)	63/3	74/4 1/2	71/9	64/10	65/0 1/2	72/4	61/3	63/7
	†Mutton, dead weight (London)	86/4	84/10 1/2	83/5	80/3	75/10	87/9 1/2	74/8	85/9
	†Pork, dead weight (London)	72/11	73/2 1/2	67/11 1/2	* 73/6	65/0 1/2	70/-	* 69/1 1/2	72/11
	Butter (London)	138/10	140/-	133/11	121/-	122/5	110/1	125/-	110/8
	†Cheese, Cheddar (London)	78/9	75/6	n. q.	* 82/1	61/8	74/8	* 72/11	83/-
	Eggs, new laid (per 100) (London)	15/5	14/8	13/5 1/4	9/9 1/4	14/0 1/4	13/2	13/7 1/2	12/9 1/2
B I	§Basic slag 14 % (London)	43/-	43/-	43/-	43/-	43/-	43/-	43/-	43/-
	Superphosphate, 16 % (London)	56/-	56/-	56/-	56/-	56/-	56/-	56/-	56/-
	Kainite 14 % (London)	55/-	55/-	55/-	55/-	54/8	56/-	54/11	54/6
	§Nitrate of soda, 15 ½ % (London)	152/-	152/-	152/-	152/-	152/-	154/-	152/-	152/6
	§Sulphate of ammonia 20.6 % (London)	136/-	134/-	145/-	145/-	138/4	138/4	141/4	141/4
B II	Bran, British (London)	125/6	121/2	109/9	104/8	103/5	116/7	111/7	117/-
	Bran, middlings, imported (London)	128/-	122/10	108/6	101/11	106/3	118/1	106/3	115/1
	Linseed cake, English (London)	190/-	188/-	175/-	160/9	162/-	199/1	160/8	182/1
	Cottonseed cake (London)	111/-	111/-	100/6	95/3	92/5	97/7	93/5	96/1
	Palm-kernel cake (Liverpool)	135/-	135/-	130/3	125/-	121/-	121/10	122/5	124/5

---

*, †, §: See notes on page 776.

1) See note (3) on page 771. — 2) Quotation of last day of the month. — 3) From October 1934, price per degree and hectolitre. — 4) From January 1935, prices in Coudekerque.

ITALY (Prices in lire per quintal)

Groups	Description	Average Sept. 1936	August 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept. 1934	Agricultural year 1935-36	1934-35
A I	†Wheat, soft (Milan)	123 00	121.20	119.60	119.25	101 50	83.65	111.90	94.95
	Wheat, hard (Palermo)	...	...	...	...	129.35	99.65	...	110.15
	Oats (Milan)	...	88.10	n. q.	* 97.40	84.85	54.30	* 94.40	59.90
	†Maize (Milan)	86.00	93.10	89.00	85.05	80.00	58 15	83.00	61.55
	Rice, Maratelli (Milan)	154,75	159.50	159.50	158.35	132.55	126.70	152.20	128.00
	Hemp, fibre	...	...	...	...	...	249.00	...	284.00
	§Olive oil " Sopraffino locale " (Bari)	...	...	...	...	551.00	538.00	...	539 00
	§Wine, ordinary, 11° (hectol.) (Bari)	...	...	...	...	71 65	53.00	...	63.00
A II	†Oxen live weight (Milan	365.00	356.00	347.00	348.00	254.65	249.00	284.90	252.00
	Lamb, dead weight (Rome)	860.00	n. q.	n q.	713.65	739.35	* 775.00	* 641.05	* 601 00
	Pigs, live weight (Milan)	n q.	n. q.	n. q.	n. q.	415.65	372.00	* 409.00	355.00
	†Cheese (Parmigiano-Reggiano) (Milan)	785 00	842.50	818.00	757.40	663.15	677.00	704 00	629.00
	Eggs, new laid (per 100) (Milan)	49 60	44.10	38 35	37.25	37.90	33.10	47.20	36.45
	Wool, Italian (Rome)	2,065.00	2,065 00	2,065.00	*2,126.00	1,372 65	728.65	1,809.90	933.00
B I	Superphosphate of lime, 14-16 % (Milan)	19 70	18.95	18.75	18.70	19 75	20 45	19 15	19.80
	Chloride of potash (Milan)	58.00	58.00	56.50	55.30	42.75	63.00	51.30	53.35
	Nitrate of lime, 15-16 % (Milan)	78.50	79.70	80.00	80.30	77.50	71 65	76 75	74.25
	Sulphate of ammonia, 20-21 % (Milan)	77 50	78.70	79.00	79.30	75.75	72.75	75 55	74.25
	Cyanamide of calcium, 15-16 % (Milan)	58 80	58 45	58.35	58.35	55 45	55.15	55 70	55.80
	Copper sulphate (Genoa)	n. q.	n q	* 132 65	...	112.10	* 86 50	.	89.25
B II	Wheat-bran (Genoa)	48 50	40 70	40.75	42 45	59.60	46.70	51 80	44.95
	Rice-bran (Milan)	52 50	44 80	43.50	45 30	62.35	38.45	57.00	43.45
	Linseed cake (Milan)	82 00	78.10	77 50	76.20	71.20	52.80	78 00	59.25
	Groundnut cake (Milan)	71 50	71.50	71.50	70.85	58 65	33 25	68 10	39.40
	Rapeseed cake (Milan)	36.50	36 50	36 50	38.30	37 65	28 10	38.65	35.55

NETHERLANDS (Prices in florins per quintal)

Groups	Description	Average Sept. 1936	August 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept. 1934	Agricultural year 1935-36	1934-35
A I	Wheat (Groningen)	9 00	11 65	11.50	11.20	11.72	12.03	10.91	11.82
	Rye (Groningen)	* 7.61	* 7.60	n. q.	* 7.94	6.75	* 7.67	* 7.09	* 7.37
	Barley (Groningen)	* 5.56	5 65	5.65	5.33	4 45	5.23	4.83	5 32
	Oats (Groningen)	* 5 97	* 6.68	* 6.79	6.38	5.70	6.10	6.01	6.17
	Peas (Rotterdam)	10.89	11 12	n. q.	n. q.	9.40	* 8.97	* 9.50	* 9.36
	Flax, fibre (Rotterdam)	54 00	51.00	48.00	50 10	54.83	43 17	55.84	52.87
	§Potatoes (Amsterdam)	...	3.87	2) 5 05	3.71	5.75	6 12	3.80	5.34
A II	Beef, dead weight (Rotterdam)	63.00	62.50	58.50	55 67	49.17	60.00	50 62	55.92
	†Pigs, live weight (Rotterdam)	39 50	38 00	35 00	32.83	39 83	30.67	37.87	33.37
	†Butter for export (Leeuwarden)	57.50	62 00	59.75	49.21	49.08	41.83	53.25	44.00
	†Cheese, Edam 40 % (Alkmaar)	32.50	35.75	38.70	37.33	31.82	40.40	34 70	31.32
	Cheese, Gouda 45 % (Gouda)	43.50	44 00	42.80	40 35	40.83	44.16	43.60	39.34
	†Eggs (per 100) (Roermond)	3 09	3 02	2.72	2.48	3 03	3.65	3 19	3.44
B I	Basic slag 1)	* 0.105	0.105	0.105	0,093	0.088	0.110	* 0.090	0.102
	Superphosphate, 17 %	*n. 1.72	n 1.72	n. q.	* 1.82	1.76	1.75	* 1.76	1.68
	Kainite 1)	0.096	0.096	0 097	0.104	0.078	0.068	0.095	0.068
	Nitrate of soda 15 ½ to 16 %	n. 5.72	* 5 68	6.30	* 6.30	5.99	6.01	* 6.03	6.24
	Sulphate of ammonia, 20 ½ %	n. 4 82	4.76	5.40	5.33	4.92	4.74	5 09	4.90
B II	Maize (Rotterdam)	6.61	6.29	5.60	5.21	4.44	5.36	4.84	5.03
	Linseed cake, Dutch	7.45	7.34	6.90	6.50	5.14	6.91	5.93	6 20
	Coconut cake, Dutch	6.95	6.89	5 34	5.76	5.36	6.05	5.51	6.01
	Groundnut cake, Dutch	7.70	7.56	7.25	6.58	4.96	6.02	5.78	5 51

POLAND (Prices in zlotys per quintal)

Groups	Description	Average Sept. 1936	August 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept. 1934	Agricultural year 1935-36	1934-35
A I	Wheat (Warsaw)	23.21	21.74	20 32	22.97	16.78	20.04	19.91	18.63
	†Rye (Warsaw)	15.56	14.36	13.67	14.82	11.92	16.22	13.13	14.99
	†Barley (Warsaw)	21.69	* 19.50	* 15.87	15.81	* 15.53	20 40	* 15.90	19.87
	Oats (Warsaw)	15.03	14.88	15.43	15.72	15.24	15.75	15.14	15.31
A II	Oxen live weight (Warsaw)	66.20	65.75	65.20	65.00	64.33	65 63	63.20	60.06
	Pigs, live weight (Warsaw)	92.75	93.00	93.00	92.73	96.33	78.75	88.74	66.92
	Butter (Warsaw)	258.00	261.00	254.00	257.67	287.00	234.00	292.18	260.00
	†Eggs, new laid (per 100) (Warsaw)	6 41	5.31	5.36	5.07	6.47	5.79	7.25	6.88

---

*, †, §: see notes on page 776

1) Prices per unit of fertilizer material in 100 kg. — 2) Eigenheimers quality.

ROUPS	DESCRIPTION	AVERAGE							
		Sept. 1936	Aug. 1936	July 1936	April-June 1936	July-Sept. 1935	July-Sept 1934	Agricultural year 1935-36	Agricultural year 1934-35
	POLAND (*continued*)								
B I	Superphosphate 1)	...	0.65	0.64	0.65	0.61	0.60	0.62	0.60
	Potash salts, 25 % 2)	...	7.80	7.80	7.51	8.96	8.44	8.00	8.60
	Sulphate of ammonia 3)	20.70	20.70	20.70	20.70	20.70	20.70	20.70	20.70
B II	Wheat-bran (Warsaw)	10.95	10.25	9 95	11.49	9.29	11.60	10.35	11.03
	Rye-bran (Warsaw)	9.62	9.20	8.99	11.41	8.19	10.44	9.34	9.72
	Linseed cake (Warsaw)	17.20	16.55	15.85	17.60	16.88	19.13	16.86	17.69
	Rapeseed cake (Warsaw)	14.30	13.37	13.40	14.77	12.25	14.36	13.73	13.20
	SWEDEN (Prices in Swedish crowns per quintal)								
A I	Wheat (Stockholm)	17.84	16.75	n. q.	* 16.50	16.47	17.08	* 16.32	17.02
	Rye (Stockholm)	17.35	16.00	n. q.	* 15.50	15.07	16.06	* 15.11	15.96
	Barley (Stockholm)	n. q.	n. q.	n. q.	n. q.	n. q.	* 12.70	n. q.	* 12.89
	Oats (Stockholm)	n. q.	12.62	12 37	12 11	* 11.29	11.97	* 11.65	11.75
A II	Cows, live weight (Göteborg)	...	...	62.00	58.33	56.33	45.45	57.58	48.00
	Pigs, live weight (Göteborg)	...	...	84.00	86.33	83 67	56.37	88.25	65.50
	Butter (Malmö)	222.00	215.00	215.00	215 00	216.33	230.00	215.33	230.00
	Eggs (Stockholm)	140.00	125.00	106 25	86.73	117.07	93 87	124.17	106.20
B I	Superphosphate, 20 %	7.00	7 00	7 00	7.00	7.72	7.80	7.36	7 80
	Potash salts, 20 %	7.10	7.10	8.35	8.35	6.47	6.05	7.53	6.05
	Nitrate of soda	n. q.	n. q.	n. q.	17.80	n. q.	n. q.	* 17.72	n. q.
	Calcium cyanamide	n q.	n. q.	n. q.	16.80	n. q.	n. q.	* 16.72	n. q.
B II	Maize, Plata	17.13	17.10	16 27	15 48	15 25	14.47	15.25	* 15.23
	Wheat-bran	13.80	14 01	13.87	13.64	12.43	12.28	13.18	12 50
	Groundnut cake	20.04	20.05	19 27	17 98	17.57	15.65	18 20	16.46
	Cottonseed cake	n. q.	n. q.	n. q.	* 15 34	16.00	13 85	* 16.19	* 14.67
	Soya meal	19.33	19.72	18.98	17 09	16.86	15.39	17.51	15.91
	CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)								
A I	Wheat (Prague) 4)	161.50	161 00	n. q.	177.00	171.75	168.10	170.95	173.10
	Rye (Prague) 4)	125.50	124 85	n. q.	139.15	132.65	128.50	133.05	132.60
	Barley, malting (Prague) 4)	126.50	125.00	n. q	135 50	131.65	126.50	131.70	131.35
	Oats (Prague) 4)	112.50	112 00	n. q	122.50	118.50	118.70	118.25	119.10
	Potatoes, edible	25.00	40.50	51.00	38 65	90.85	72.85	54.35	48.55
	Hops	1,938.00	1,734.00	2,168.00	2,526 00	3,355.00	3,775 00	2,969.40	4,095.00
A II	Beef, dead weight	1,175 00	1,087.00	1,025.00	991 65	841.65	725.00	914.50	744.00
	Veal, dead weight	1,100,00	937.50	825.00	904.00	783.35	550.00	839.50	663.00
	Pork, dead weight	1,112.50	1,050.00	1,025.00	941.65	1,039.00	825.00	925.00	813.00
	Butter	1,775.00	1,675.00	1,600 00	1,700.00	1,775 00	1,825.00	1,765.85	1,790.00
	Eggs, new laid (per 100)	55.00	50.00	50.00	47.75	50.80	43.35	55.40	51.35
B I	Basic slag, 15 %	34.85	34 85	34.85	34.85	34.85	34.85	34.85	34.70
	Superphosphate, 16 to 18 %	48.50	48 50	48.50	48.50	48.50	48.50	48.50	48.50
	Kainite, 14 %	22.30	22.30	22 35	21.90	19.10	18 05	20.95	18.10
	Nitrate of soda	n. q.	n. q.	n. q.	130 00	n. q.	* 125 00	* 130 00	* 129.15
	Sulphate of ammonia, 20 ½ %	123.40	123.40	118.40	123.40	123.40	121.75	122.40	122.00
B II	Maize, imported	105.50	106.00	106.50	105.50	107.35	89.25	107 30	102.70
	Wheat-bran (Prague) 5)	105.00	105.00	105.00	105.00	99.00	97.85	103.50	95.75
	Rye-bran (Prague) 5)	103.00	103.00	103.00	103.00	97.00	96.50	101.50	93.95
	Crushed soya (Prague) 5)6)	142.00	142.00	142.00	142.00	143.00	* 106.00	142.25	* 132.20
	Rapeseed cake (Prague) 5)7)	117,50	117.50	117.50	117.50	118.50	92 35	117.75	* 109.30
	Linseed cake (Prague, delivered Lovosice) 5)	139,50	139.50	139.50	139.50	140.50	* 114.00	139.75	* 133.25
	Groundnut cake (Prague, delivered Strekov) 5)	150.00	150.00	150.00	150.00	151.00	102.35	150.25	* 133.80

---

1) Prices per unit of fertilizer material in 100 kg.. — 2) New series from July 1934 onwards, Potash salts 20 %. — 3) New series from July 1934 onwards. — 4) Until the end of July 1934, average wholesale market prices; subsequently, producers' prices. — 5) Until the end of July 1934, average wholesale market prices; Aug -Nov., manufacturers' selling prices, subsequently, wholesalers' selling prices. — 6) From Aug. 1934, soyabean cake, delivered Lovosice. — 7) From July 1934, delivered Lovosice.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL 1)

DESCRIPTION	Sept.	August	July	June	May	April	Sept.	Sept.	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
Wheat										
Budapest. Tisza	9.67	8.97	8.95	8.60	9.21	9.41	9.34	10.26	9.71	8.25
Winnipeg: No 1 Manitoba	11.72	11.39	10.65	9.03	8.70	9.03	10.15	9.41	9.53	8.52
Chicago: No 2 Hard Winter	13.52	13.42	12.59	10.72	11.12	11.70	13.13	12.46	12.08	11.10
Buenos-Aires: Barletta 2)	11.34	12.33	11.17	9.10	9.06	9.08	8.74	7.44	7.57	6.59
Berlin: Home grown	24.21	25.19	26.43	26.62	26.39	25 94	24.25	24.21	25.14	23.67
Hamburg (c. i. f):										
No 1 Manitoba	14.00	14.24	12.60	11.17	* 11.13	* 11.18	12.20	11.15	11.44	10.22
Barusso	13.18	13.63	11.82	11.13	* 11.13	* 11.30	9.90	8.67	8.74	7.51
Antwerp:										
No 1 Manitoba (Atlantic)	13.19	13.42	11.89	10.65	10.89	11 18	11.64	11.32	11.23	10.18
Barusso	13.26	12.90	11.47	10.87	11.22	11.21	9.57	8.20	8.58	7.41
Paris: Home grown	29.23	22.56	21.40	19.95	19.13	20.21	17.79	22.53	16.08	24.57
Liverpool and London (c. i. f.):										
German (on sample)	n. q.	n. q.	n q.	n. q.	n. q.	n. q.	n q.	n. q.	n. q	* 6.27
French (on sample)	n. q.	n. q.	10.02	8.88	9.26	* 9.15	n. q	7.64	7.08	* 7.03
Hungarian (on sample)	n. q.	n. q	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 6.26
No 1 Manitoba (Pacific)	13.57	13.52	12.12	10 61	10.52	10.71	11.82	11.21	11.10	10.27
No 3 Manitoba (Pacific)	13.08	13.06	11.95	10.14	9.97	10.22	10.93	10.47	10.16	9.42
Rosafé	12.14	12.25	n. q.	n. q.	n. q.	n q.	10.10	8.29	8.64	7.27
Western Australian (cargoes)	14.05	13.86	n. q.	10.67	10.59	10.63	10.79	9.66	9.61	8.83
Milan: Home grown, soft	29.66	29.23	28.84	29.01	29.01	28.74	27.38	22.52	26.63	22 81
Genoa (c i. f):										
No 1 Manitoba	n. q.	n. q	n. q.	n. q	n. q.	n. q.	n q	10.79	* 10.28	* 9.65
No 1 Canadian Durum	n. q.	n. q.	n. q.	n. q	n. q.	n. q.	n q.	12.88	* 12.46	* 11.07
Rye										
Berlin: Home grown	19.64	19.39	20.38	22.01	21.78	21.37	19.67	19.27	20.29	19.34
Hamburg: Plata	8 24	7.85	6 97	6.65	* 6.86	* 6.82	6.07	8.64	6.31	6.54
Warsaw: Home grown	8.95	8.31	7 94	8 77	8.76	8 31	7.48	10.02	7.77	8.68
Minneapolis: No 2	10.25	9.81	9.08	7 04	6.20	6.06	5.72	10.17	6.72	8.49
Barley										
Braila: Average quality 3)	4.38	4 20	4.02	4 30	4.13	4.64	4.26	8.74	4) * 6.75	* 6 87
Prague: Malting, average quality	16.03	15.84	n q	17.34	17.34	17.34	16.19	16.13	16.85	14.48
Winnipeg: No 4 Western	8.18	8.00	6 82	5 04	4.95	5.23	4.70	7.99	5.11	6.42
Minneapolis: No 2 Feeding	10.88	10.39	8.28	5.07	4.50	4.90	5.72	11.24	7.32	8.30
Berlin: Home-grown, fodder	20.01	19.76	20.75	22.39	22.16	21.74	20 04	19.14	20.33	19.41
Antwerp: Danubian	9.61	9.37	8.33	8.00	8.14	7.92	7.49	10.66	7.85	8.70
Liverpool and London (c. i. f.):										
No 3 Canadian Western	10.42	11.14	9 23	7.45	7.32	7.48	7.06	10.46	7.88	8.79
Plata	8.30	8.53	7.51	7.10	7.01	6.93	6.61	9.21	6.68	7.30
Persian	8.20	8.26	7.24	* 6.39	* 6.36	6.70	6.41	9.46	6.56	7.33
Oats										
Winnipeg. No 2 White	8.96	9.75	8.31	6 66	6.56	6.74	7.18	9.16	7.67	7.81
Chicago No 2 White	9.69	9.67	8 42	6.54	6.22	6.37	6.97	12.06	8.72	9.65
Buenos-Aires: Current quality 2)	6.00	6.48	6.41	5.33	5.61	5.67	7.25	5.79	* 5.74	4.53
Berlin: Home grown	19.51	20.62	21.74	21.89	21.66	21.24	19.55	19.39	20.44	19.96
Paris: Home grown	19.31	18.34	17.28	16.31	16.65	15.66	9.94	12.02	9.62	10.05
London and Liverpool (c i. f.): Plata	7.88	8.15	7.40	n. 7.12	7.45	7.62	8.56	7.17	7.15	5.84

---

1) As gold franc, the Swiss franc, which still represents the franc of the former Latin Monetary Union, has been adopted. In cases where the difference between the rates of exchange of the national currency considered, and the parity with the Swiss franc did not, during a given month, reach 2½ %, the monthly average has been converted on the basis of parity. In other cases the average rate of exchange for the month has been utilized. Finally, when considerable fluctuations in the exchanges in the course of a particular month render it necessary, each weekly quotation has first been converted to gold francs, and the average of these conversions is used in the calculations. — 2) The prices in gold-francs are based on the fixed rates of exchange of the Argentine peso — 3) Prices in gold francs as from Sept. 1935 are based on quotations for bank notes — 4) Jan.-Aug. average. See preceding note.

DESCRIPTION	Sept. 1936	Aug. 1936	July 1936	June 1936	May 1936	April 1936	Sept. 1935	Sept. 1934	Year	
									1935	1934
Maize.										
Braila: Home-grown 1)	5.00	5.07	4.67	4.58	4.37	4.64	3,94	7.59	3)* 7,09	* 6.57
Chicago: No 3 Yellow	13.73	13.66	10.89	7.81	7.69	7.55	10.07	9.53	9.88	7.91
Buenos-Aires: Yellow Plata 2)	6.15	6.29	5.53	4.55	4.41	4.35	4.58	7.01	4.74	5.86
Liverpool and London (c. i. f):										
Yellow Plata	8.06	8.48	7.05	6.39	6.22	6.12	5.55	7.84	5.82	6.88
No 2 White African	n. q.	n. q.	n. q.	n. q.	n. q.	n q.	5.72	8.48	6.26	* 7.90
Milan: Home-grown	20.74	22.45	21.46	20.76	20.66	20.45	20.16	12.29	18.98	14.50
Rice.										
Milan: Originario	30.14	30.14	30.14	30.19	30.59	30.86	33.25	27.04	30.90	27.22
Rangoon: No 2 Burma	8.56	8.64	8.23	8.44	8.41	8 32	8.83	8.21	8.50	6.91
Saigon: No 1 Round white	10.60	10.66	9.64	8.85	8.65	8.77	8.93	8.12	8.49	6.59
London (c. i. f.):										
No 2 Burma	12 31	12.14	11.42	11.58	11.57	11.61	12.06	11.94	11.41	10.17
No 1 Saigon	13.58	13.66	12.27	11.36	11.35	11.49	11.75	11.29	11.05	9.58
Tokyo: Chumai	...	...	19 62	19.96	19.19	18.48	19.33	17 74	18.12	16.44
Cotton.										
New Orleans: Middling	82.96	81.61	86.84	82.65	79.18	78.71	72.52	86.84	80.48	83.52
Bombay (terminal market): M. g. Broach, f. g.	71.22	72.23	75.26	71.63	65.37	64.30	64.52	69.59	73.30	69.02
Alexandria: Sakellaridis, f. g. f.	122.04	124.19	126.22	115.46	107.99	107.79	98.09	101.12	104.98	108.44
Liverpool:										
Middling american	97.61	96.89	103.32	98.61	92.37	92.32	87.72	98.11	93.03	95.28
M. g. Broach, f. g.	n. 78.80	n. 76.21	n. 80.91	77.52	71.89	74.05	72.40	73.23	79.15	71.87
Sakellaridis, f. g. f.	147.62	151 71	147.87	127.53	125.42	127.75	115.42	117.01	119.93	123.01
Beef.										
Berlin: Home-grown (live weight)	103.74	103.74	103.74	104.47	104.56	103.74	103.93	87.44	100.97	83.54
Paris: Home-grown (dead weight)	129.51	133.78	127.69	119.57	117.94	117.74	102.11	111.85	97.03	104.22
London: Home-grown (dead weight)	96.62	112.87	108.35	106.86	94.01	93.26	93 23	100 31	* 90.89	101.86
Mutton.										
Paris: Home-grown (dead weight)	199.75	199.14	194.68	186.35	193.46	203.41	206.86	217.01	204.71	225.99
London: Home-grown (dead weight)	131.80	128.81	125.97	* 126.01	127.55	110.69	122.57	122.89	* 121.20	128.70
Pork.										
Denmark: Home-grown (live weight)	121.88	119.80	113.73	115.71	118.01	119.02	103.55	117.18	108.89	107.97
Rotterdam: Home-grown (live weight)	82.28	79.15	72.90	70.82	66.66	67.70	92.69	62.49	80.46	68.74
Berlin: Home-grown (live weight)	124.73	124.73	124.73	125,62	125.72	124.74	127.44	122.76	119.29	107.88
Paris: Home-grown (live weight)	117.94	135.20	119.77	113.68	113.48	105.36	82.42	88.91	75.97	85.77
London: Home-grown (dead weight)	111.31	111.10	102.63	n. q.	n. q.	109.82	117.60	108.99	104.21	116.14

1) Prices in gold francs as from Sept. 1935 are based on quotations for bank notes. — 2) The prices in gold-francs are based on the fixed rates of exchange of the Argentine peso. — 3) Average January-August. See note 1).

Description	Sept 1936	Aug 1936	July 1936	June 1936	May 1936	April 1936	Sept. 1935	Sept. 1934	Year 1935	Year 1934
Butter										
Copenhagen: Danish	152.70	155.26	149.77	137.88	119.11	119.63	152.28	121.57	129.70	111.34
Leeuwarden: Dutch	119.77	129.15	124.46	119.25	96.59	91.65	120.81	89.57	101.80	92.48
Hamburg Schleswig-Holstein	321.10	321.10	321.10	323.37	323.63	321.11	321.68	323.57	321.38	314.83
London.										
Danish	190.97	193.13	187.78	176.09	157.64	158.14	188.33	158.20	167.62	150.88
Argentine	150.77	163.92	159.84	n. q.	n. q.	n. q.	n. q.	n. q.	* 123.10	* 106.12
Australian, salted	163.11	179.10	170.67	162.35	140.49	130.37	163.84	105.84	133.27	107.41
New Zealand, salted	163.49	180.36	172.30	164.25	142.25	131.00	164.46	107.58	135.38	111.11
Cheese										
Milan: Parmigiano-Reggiano	189.30	203.17	197.26	189.69	182.34	179.12	172.70	144.87	163.90	190.75
Alkmaar. Edam 40 +	67.70	74.45	80.61	84.11	78.11	71.07	85.90	75.49	61.84	77.66
Kempten: Emmenthal variety	197.60	197.60	197.60	199.00	199.16	197.61	190.54	175.37	189.68	174.39
London:										
English Cheddar	120.23	114.59	n. q	n. q	* 125.61	121.41	95.22	122.09	115.33	* 127.81
Canadian	107.38	103.08	106.60	100.77	96.73	91.65	82.17	75.69	89.52	82.69
New Zealand	104.33	104.09	92.38	90.84	86.39	79.57	81.67	71.22	72.52	71.08
Eggs (per 100)										
Denmark: Danish (per quintal)	88.99	71.60	56.18	52.66	51.46	* 43.38	83.65	85.10	72.09	71.69
Roermond: Dutch, for export	6.44	6.29	5.67	5.59	5.26	4.95	6.89	8.35	6.45	8.21
Warsaw: Polish, average quality	3.69	3.07	3.11	3.04	2.94	2.85	3.90	3.58	4.21	4.30
Berlin: German, big, special quality	14.82	14.82	12.78	11.50	11.51	11.42	14.23	12.50	13.06	12.67
London:										
Danish	8.66	8.11	7.61	6.54	6.21	5.94	8.13	7.91	7.82	8.08
Dutch	9.67	8.74	8.21	7.51	6.81	6.34	9.97	8.33	8.30	8.59

Egg prices in Roermond.

Prices of Netherlands eggs, white, 57 to 58 gr., per egg, ex Roermond, expressed in florins per 100 are given below in the period for which they did not appear in the *Crop Report*.

Date	Eggs for export into Germany	Eggs for other destinations	Date	Eggs for export into Germany	Eggs for other destinations
17 July 1936	3.30	2.95	21 August 1936	3.50	3.10
24 » »	3.40	3.15	28 » »	3.40	3.10
31 » »	3.60	3.40	4 September »	3.70	3.50
7 August »	3.60	3.40	11 » »	3.80	3.60
14 » »	3.60	3.35			

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them

In addition to the original data a summary table is given below

Percentage variations in the index-numbers for August 1936

Countries	Comparison with August 1936		Comparison with Sept 1935	
	Index numbers of prices of agricultural product	Index number of wholesale prices in general	Index number of prices of agricultural product	Index numbers of wholesale prices in general
Germany	— 1.3	— 0.2	1.3	+ 2.1
England and Wales	7.3		3.9	
Argentina	— 3.0	—	+ 19.1	—
Canada	2.3	+ 0.3	15.9	5.7
United States Bureau of Agric Economics	0.0	—	15.9	—
United States Bureau of Labor	0.2	0.0	5.7	1.1
Finland	— 1.3	1.1	1.3	1.1
Hungary	1.4	+ 1.2	— 12.2	— 5.4
New Zealand	0.1		17.6	—
Netherlands	3.6	— 0.2	3.9	+ 1.3
Poland		—		
Yugoslavia				
plant products	— 0.7	+ 1.5	— 22.7	— 1.2
livestock products	3.7		21.1	

Quarterly general index-numbers of prices of agricultural products

(Base first quarter of 1929 = 100)

Countries	1934		1935				1936		
	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Germany	74.4	75.5	75.0	75.7	77.9	78.6	78.7	79.1	79.5
England and Wales	84.0	83.8	84.5	83.3	85.4	83.3	85.4	85.4	87.5
Argentina	72.5	69.0	66.5	66.1	69.0	74.4	78.2	78.8	86.8
Canada	62.7	62.9	73.8	74.2	64.5	67.3	67.7	66.6	73.5
United States Bur of Agr Economics	63.7	69.4	74.4	73.8	71.9	74.7	73.3	71.9	82.9
United States Bur of Labor	63.2	67.0	73.8	75.2	74.1	73.5	73.5	72.2	78.2
Finland	67.8	70.4	70.4	69.8	72.0	72.6	75.1	72.0	73.5
Hungary	51.1	52.9	55.3	56.1	59.6	64.8	61.0	53.6	52.9
Italy	55.6	57.9	58.8	63.0	67.8				
New Zealand 1)	108.6	99.9	105.9	102.3	108.4	120.4	120.6	120.8	129.4
Netherlands	58.2	55.0	52.8	53.6	55.7	54.6	53.6	55.7	57.9
Poland 2)	51.0	48.8	45.9	45.1	46.1	49.7	45.4	48.2	47.7
Yugoslavia plant products	43.5	43.1	45.3	44.2	50.4	60.7	60.3	51.4	44.6
Yugoslavia livestock products	49.4	53.0	53.4	53.4	50.6	54.5	51.9	53.1	58.9

1) Base first quarter of 1931 = 100 — 2) First month of each quarter compared with January 1929

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	Sept. 1936	August 1936	July 1936	June 1936	May 1936	April 1936	Sept. 1935	Sept. 1934	Year 1935	Year 1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	111.4	115.2	117.2	116.9	116.4	115.5	110.7	112.9	113.4	108.7
Livestock	92.6	92.0	89.1	88.9	88.7	89.0	90.4	76.9	84.2	70.9
Livestock products	111.7	111.6	108.8	107.3	107.2	107.3	110.0	106.0	107.1	105.0
Feeding stuffs	103.5	106.6	110.2	111.2	110.7	109.8	103.4	105 8	104.6	102.0
Total agricultural products	105.0	106.4	106.1	105.7	105.3	105.0	103.7	99.8	102.2	95.9
Fertilizers	65.2	64.4	62.9	68.4	67.9	69.9	66.7	68.4	66.8	68.7
Agricultural dead stock	111.8	111.5	111.4	111.3	111.4	111.3	111.1	111.3	111.1	111.1
Finished manufactures («Konsumguter»)	128.4	127.8	127.4	126.7	126.2	125.9	123.8	118.4	124.0	117.3
Wholesale products in general	104 4	104.6	104.2	104.0	103.8	103.7	102.3	100.4	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 2)	133	124	121	121	120	129	128	125	123	119
Feeding stuffs	99	105	93	87	85	86	81	102	87	91
Fertilizers	88	88	89	89	89	89	88	89	88	90
Wholesale products in general 3)	...	104.4	102.1	99.3	100.2	100.9	100.1	96.6	99.5	96.4
Argentina (Banco Central de la Repùblica Argentina) 1926 = 100										
Cereals and linseed	88.3	92.9	85.1	78.9	78.3	78.5	70.7	78.8	67.2	68.1
Meat	97.6	101 4	95.7	92.8	89.4	85.5	91.5	80.0	84.0	78.5
Hides and skins	89.0	83.4	77.7	78.1	80.7	88.6	80.0	65.3	80.5	71.6
Wool	109.1	106.4	100.1	98.9	97.7	98.2	79.9	80.5	74.6	84.3
Dairy products	90.8	92.9	84.6	86.6	94.2	83.0	120.2	68.1	88.8	62.3
Forest products	95.8	95.6	95.5	97.7	98.0	97.7	91.5	71.6	92.2	73.1
Total agricultural products	91.1	93.9	87.0	82.5	82.1	82.5	76.5	77.0	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	74.2	74.1	63.2	60.8	59.9	59.8	58.3	59.0	57.1	53.8
Livestock and livestock products	76.4	71.9	71.6	70.7	73.0	73.8	75.5	65.0	73.9	67.7
Total Canadian farm products	75.0	73.3	66.3	64.5	64.8	65.0	64.7	61.2	63.4	59.0
Fertilizers	74.3	74.3	74.3	74.3	74.3	72.9	75.8	75.8	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.5	75.5	75.0	75.4	75.3	75.3	75.0	76.7	75.7	77.0
Wholesale products in general	76.4	76.2	74.4	72.3	71.8	72.2	72.3	71.9	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696) — 2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments.
3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	Sept	August	July	June	May	April	Sept	Sept	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
United States										
(Bureau of Agricultural Economics)										
Average 1909 10 to 1913 14 = 100										
Cereals	130	129	109	87	88	89	97	112	103	93
Cotton and cottonseed	106	103	105	96	96	96	90	110	101	99
Fruits	105	108	117	115	103	89	82	93	91	100
Truck crops (market garden crops)	153	134	115	99	105	107	101	133	127	104
Meat animals	123	123	119	120	118	125	131	82	117	68
Dairy products	128	125	116	106	106	114	102	99	108	95
Chickens and eggs	119	112	106	103	101	97	126	104	117	89
Miscellaneous	141	152	131	120	97	94	96	129	97	108
Total agricultural products	124	124	115	107	103	105	107	103	108	90
Commodities purchased 1)	127	126	123	120	121	121	123	126	125	123
Agricultural wages 1)	110	—	—	108	—	—	—	—	95	88
United States										
(Bureau of Labor)										
1926 = 100										
Cereals	102	102.4	88.9	73.0	70.6	73.9	83.5	88.1	82.4	74.5
Livestock and poultry	83.8	84.5	82.0	83.2	82.5	88.3	92.0	64.1	84.9	51.5
Other farm products	78.6	77.8	78.2	75.8	71.4	70.4	70.4	74.4	73.4	70.5
Total agricultural products	84.0	83.8	81.3	78.1	75.2	76.9	79.5	73.4	78.7	65.3
Agricultural implements	94.2	94.2	94.2	94.2	94.2	94.2	93.7	92.0	93.7	89.6
Fertilizer materials	67.6	66.7	65.2	64.0	64.7	64.6	67.2	66.4	66.3	67.1
Mixed fertilizers	69.4	69.3	68.7	66.0	65.3	64.5	67.8	73.0	70.6	72.5
Cattle feed	107.5	114.2	107.9	80.7	71.2	74.0	67.9	100.7	88.4	89.4
Non agricultural commodities	80.9	80.9	80.3	79.4	79.2	80.1	80.8	78.4	80.2	76.9
Wholesale products in general	81.6	81.6	80.5	79.2	78.6	79.7	80.7	77.6	80.0	74.9
Finland										
(Central Bureau of Statistics)										
1926 = 100										
Cereals	89	87	87	89	88	88	77	86	80	82
Potatoes	59	77	93	83	83	85	65	51	75	49
Fodder	64	60	59	65	66	66	59	61	62	72
Meat	80	86	88	82	77	80	77	74	75	71
Dairy products	81	81	81	80	78	78	85	76	83	75
Total agricultural products	78	79	79	78	76	78	77	74	76	73
Wholesale products in general	92	91	91	90	90	90	91	90	90	90
Hungary										
(Central Bureau of Statistics)										
1913 = 100										
Agricultural and livestock products	72	71	71	70	72	75	82	71	—	—
Wholesale products in general	87	86	86	85	86	88	92	83	—	—
Italy										
(Consiglio Provinciale dell Economia Corporativa di Milano)										
1913 = 100										
National agricultural products								308.8		297.9
Wholesale products in general							337.4	275.5		275.8
New Zealand										
(Census and Statistics Office)										
Average 1909 13 = 100										
Dairy products	122.6	119.8	114.2	106.9	96.9	92.6	97.6	84.0	91.3	76.7
Meat	156.5	155.0	158.4	159.8	157.8	159.2	151.0	153.4	157.6	151.8
Wool	105.3	107.4	111.7	102.2	109.0	108.3	80.4	104.1	82.2	127.3
Other pastoral products	123.7	124.4	123.1	121.6	116.4	120.5	107.9	80.4	96.7	88.8
All pastoral and dairy products	128.7	127.5	126.8	121.9	118.0	116.6	108.7	106.2	107.2	108.9
Field products	118.4	120.4	118.8	127.4	128.8	129.9	125.4	123.1	126.0	120.0
Total agricultural products	128.4	126.6	128.3	122.1	118.4	117.0	109.2	106.4	108.8	104.7

1) 1910 1914 = 100 — 2) July

DESCRIPTION	Sept 1936	August 1936	July 1936	June 1936	May 1936	April 1936	Sept 1935	Sept 1934	Year	
									1935 36 3)	1934-35 3)
Norway										
(Kgl Selskap for Norges Vel) Average 1909 14 100										
Cereals	153	154	148	148	145	145	142	141	144	126
Potatoes	97	101	128	132	147	155	132	97	165	132
Pork	115	112	101	101	93	108	113	86	109	83
Other meat	150	155	155	146	143	144	148	149	146	137
Dairy products	135	135	135	137	137	137	103	132	139	132
Eggs	127	110	98	88	88	101	140	101	102	92
Concentrated feeding stuffs	130	127	127	126	129	126	126	112	123	109
Maize	134	132	128	125	125	124	116	111	113	101
Fertilizers	84	86	87	88	89	88	83	80	82	81
Netherlands										
(Bureau of Agriculture) Average 1924 25 to 1928 29 — 100										
Plant products	57	57	5	47	50	48	51	68	50	58
Livestock products	52	54	54	55	54	53	50	56	51	49
Total agricultural products	53	55	53	53	53	51	51	55	51	51
Agricultural wages	68	68	68	69	68	69	69	71	69	71
Wholesale products in general 1)	62.6	62.7	62.3	61.6	61.0	61.1	61.8	—	4) 61.5	4) 63.0
Poland										
(Central Bureau of Statistics) 1928 100									1935	1934
Raw plant products		34.6	34.4	40.0	39.8	39.1	32.5	37.2	33.9	35.6
Meat animals		40.7	40.5	40.6	41.1	38.5	42.1	35.1	35.5	36.7
Dairy products and eggs		36.9	37.8	35.8	37.5	38.4	43.3	36.5	41.2	41.2
Products directly sold by farmers		37.0	37.0	39.4	39.8	38.8	37.7	36.4	35.8	37.0
Flour and groats		40.3	38.0	39.7	39.2	40.0	35.8	41.1	36.7	38.8
Meat and lard fat		47.8	47.5	46.6	48.0	42.2	50.2	44.4	40.8	43.5
Sugar alcohol beer		71.4	71.4	71.7	71.6	71.8	79.4	85.5	79.2	88.6
Products of agricultural industries		53.1	52.3	52.6	52.9	51.2	55.1	56.8	52.0	56.7
Total agricultural products		45.0	44.5	45.9	46.3	44.9	46.3	46.5	43.8	46.8
Commodities purchased 2)		64.8	64.4	64.0	63.7	64.0	66.2		66.3	70.3
Wholesale products in general 2)		53.9	53.6	53.9	53.7	53.0	54.1		53.0	55.7
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 100										
Plant products	60.4	60.8	60.9	64.5	69.0	76.3	78.1	61.2	68.2	57.4
Livestock products	64.9	62.6	61.1	56.2	57.4	56.5	53.6	54.6	56.6	55.4
Industrial products	69.2	67.6	67.5	67.6	67.9	69.4	67.3	65.6	66.7	67.4
Wholesale products in general	67.0	66.0	65.6	65.4	67.0	69.1	67.8	63.2	65.9	63.2

---

1) New index numbers calculated by the Central Statistical Bureau of the Netherlands, base 1926 1930 100 2) In consequence of a revision of the index numbers of the prices of fertilizers the other series affected by these prices have also been revised 3) Agricultural year Norway 1st April 31 March Netherlands 1st July 30 June — 4) Calendar year

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1)

NATIONAL CURRENCIES		Parity (1)	Actual Exchange Rates					Percentage deviation from parity with U. S. dollar premium (+) or discount (—)				
			16 October 1936	9 October 1936	2 October 1936	25 Sept. 1936	18 Sept. 1936	16 October 1936	9 October 1936	2 October 1936	25 Sept. 1936	18 Sept. 1936
Germany reichsmark		40 332	40 238	40 148	40 175	40 153	40 221	— 0 2	— 0 5	— 0 4	— 0 4	— 0 3
Argentina paper peso		71 959	32 640	32 679	32 910	33 708	33 750	— 54 6	— 54 6	— 54 3	— 53 2	— 53 1
Belgium belga	2) 3)	23 542 16 950	16 827	16 833	16 841	16 888	16 891	— 28 5 — 0 7	— 28 5 — 0 7	— 28 5 — 0 6	— 28 3 — 0 4	— 28 3 — 0 3
Canada dollar		100 000	100 002	100 072	100 021	100 000	100 060	0 0	+ 0 1	0 0	0 0	+ 0 1
Denmark crown		45 374	21 839	21 899	22 010	22 424	22 600	— 51 9	— 51 7	— 51 5	— 50 6	— 50 2
Spain peseta		32 669	n q	n q	n q	n q	13 650	n q	n q	n q	n q	— 58 2
France franc (4)		6 633	4 659	4 669	4 659	6 582	6 583	— 29 8	— 29 6	— 29 8	— 0 8	— 0 8
Great Britain £ (5)		8 2397	4 8931	4 9051	4 9305	5 0231	5 0620	— 40 6	— 40 5	— 40 2	— 39 0	— 38 6
Hungary pengo		29 612	19 775	19 762	19 775	19 775	19 775	— 33 2	— 33 3	— 33 2	— 33 2	— 33 2
India rupee		61 798	36 944	37 009	37 239	38 006	38 227	— 40 2	— 40 1	— 39 7	— 38 5	— 38 1
Italy lira	2) 6)	8 911 5 263	5 260	5 260	7 614	7 854	7 860	— 41 0 — 0 1	— 41 0 — 0 1	— 14 6 —	— 11 9 —	— 11 8 —
Japan yen		84 396	28 567	28 656	28 711	29 290	29 613	— 66 2	— 66 0	— 66 0	— 65 3	— 64 9
Netherlands florin		68 057	53 870	53 141	53 623	67 490	67.874	— 20 8	— 21 9	— 21 2	— 0 8	— 0 3
Poland zloty		18 994	18 827	18 830	18 838	18 825	18 815	— 0 9	— 0 9	— 0 8	— 0 9	— 0 9
Roumania leu		1 013	0 727	0 733	0 731	0 731	0 731	— 28 2	— 27 6	— 27 8	— 27 8	— 27 8
Sweden crown		45 374	25 225	25 284	25 415	25 903	26 099	— 44 4	— 44 3	— 44 0	— 42 9	— 42 5
Switzerland		32 669	22 982	23 032	23 007	32 501	32 573	— 29 7	— 29 5	— 29 6	— 0 5	— 0 3
Czechoslovakia crown	2) 7)	5 016 3 512	3 539	3 653	4 105	4 133	4 133	— 29 4 + 0 8	— 27 2 4 0	— 18 2 —	— 17 6 —	— 17 6 —

1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency (The £ sterling is expressed in dollars). The dollar contains 0 888671 grams of fine gold (i. e. 40 %) less than formerly. — 2) Former parity. — 3) New parity is from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — 5) Quotations for the Egyptian £ are omitted, its relationship with sterling being fixed ([illegible] piastres = 1 £ sterling). — 6) New parity is from 5 Oct. 1936. — 7) New parity is from 10 Oct. 1936.

Prof. **Alessandro Brizi**, *Segretario generale dell'Istituto, Direttore responsabile*

31-X-1936.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = *excellent,* 2 = *good,* 3 = *average,* 4 = *bad,* 5 = *very bad; France·* 100 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *average,* 30 = *bad; Estonia, Lithuania, Poland and Sweden;* 5 = *excellent,* 4 = *good,* 3 = *average,* 2 = *bad,* 1 = *very bad; Netherlands·* 90 = *excellent,* 70 = *good,* 60 = *fairly good,* 50 = *below average; Switzerland·* 100 = *excellent,* 90 = *very good,* 75 = *good,* 60 = *fairly good,* 50 = *average,* 40 = *rather bad,* 30 = *bad,* 10 = *very bad, U. S. S. R.* 5 = *good,* 4 = *above the average,* 3 = *average,* 2 = *below average,* 1 = *bad; Canada.* 100 = *crop condition promising a yield equivalent to the average yield of a long series of years; United States:* 100 = *crop condition which promises a normal yield; Egypt:* 100 = *from June 1934, crop condition which promises a yield equal to the average yield of the last five years — For other countries the system of the Institute is employed:* 100 = *crop condition which promises a yield equal to the average of the last ten years*

WORLD WHEAT PRODUCTION

In consequence of the data received by the Institute during November regarding the last wheat crops harvested in the northern hemisphere, only slight alterations will have to be made in the previous forecasts. Moreover, the data refer to a limited number of countries and merely represent a revision of former estimates, South Africa being the only country for which figures were lacking last month which has published new estimates.

In Europe, leaving out of account the modifications of slight importance sent in by Austria, Estonia, Finland, Hungary, Latvia and Czechoslovakia, the only country which has altered the amount of this year's crop to any considerable extent is Romania, whose production figures have increased from 121 to 129 million bushels. The total estimate of the European wheat crop, given last month as 1,450 million bushels is therefore increased to 1,460 million bushels and the estimate for all the exporting countries of the continent rises from 460 to 468 million bushels. The crop harvested by this group of countries is therefore proving to be the best since the war and is slightly in excess of the record crop of 1931.

In North America the second estimate of the Canadian crop, which generally shows a decrease on the September forecasts, is this year, on the other hand, practically identical with the first estimate; the final evaluation, which during recent years has remained much the same as the November estimate, as will be seen from the following table, will not be known until January.

In the other continents the estimates have remained more or less the same; alterations are negligible except in Asia, for Manchukuo, which has considerably decreased the forecast already given.

As regards the southern hemisphere, from the latest information received from Argentina it would appear that crop condition is still good as a result of the favourable rains in October and the first half of November. The Government has so far not communicated its first forecast to the Institute. Last month we estimated that the crop in Argentina would amount to 240 million bushels,

Estimate of the Canadian wheat crop.

(millions bushels)

Year	September Estimate	November Estimate	Final Results
1927	459	444	480
1928	551	501	567
1929	294	294	305
1930	385	396	421
1931	271	298	321
1932	467	431	443
1933	283	272	282
1934	277	275	276
1935	291	274	277
1936	233	233	....

as against 140 million last year and an average crop of 244 million during the preceding five years, calculating on a yield slightly in excess of the average. If weather conditions remain favourable and if the crop does not suffer damage from rust or late frosts before harvest, these being a serious menace in Argentina, then the yield might easily reach and even exceed the total estimated in our October forecast. Crop prospects in Chili and Uruguay are satisfactory.

According to information recently received by the Institute from the Government of the Commonwealth of Australia, crops are growing well in South Australia and in the State of Victoria, but on the other hand they have suffered from scantiness of rain in Western Australia and in New South Wales. The Government has not yet altered its first estimate, published last month (1), but the above information would suggest that even should there be some alteration in the forecast it will not be of great importance. As regards the Union of South Africa, the crop suffered from drought in October, and therefore an important decrease is forecasted in comparison with the 1935 production; but stock remaining over from the very abundant yield last year will more than cover internal requirements, so that it will not be necessary to have recourse to importation.

Taking into account the alterations following on the latest official estimates, our forecast of the total amount of the world wheat production remains more or less the same as that given last month.

The total net world export of wheat, which, on the basis of official figures, is known only for August and September, was 46 million bushels in August and 50 million bushels in September as against 39 and 50 millions respectively for the corresponding months in 1935. There is therefore a total increase for the two months of 7 million bushels, which corresponds exactly with the forecast made last month of the world import requirement, namely, 545 million bushels for the whole year, this being an increase of about 4 million bushels per month over the amount imported last year.

(1) A telegram received from Australia at the time of going to press states that the estimate of production has been increased from 129.5 to 133.5 million bushels.

World wheat production (1).

(million bushels).

YEARS	Europe 2)			North America	South America	Asia 2)	Africa	Oceania	Total 2)	U.S.S R.
	Importing countries	Exporting countries	Total							
1923-27 Average	920	323	1,243	1,210	275	402	108	143	3,381	694
1928	976	433	1,409	1,492	399	342	116	168	3,926	807
1929	1,073	378	1,451	1,139	221	384	136	134	3,465	694
1930	915	445	1,360	1,319	273	456	115	221	3,744	989
1931	973	462	1,435	1,275	264	407	131	197	3,709	753
1932	1,211	279	1,490	1,210	286	393	140	225	3,744	742
1933	1,292	455	1,747	845	345	422	124	186	3,669	1,018
1934	1,215	336	1,551	814	290	433	152	140	3,390	1,117
1935	1,188	385	1,573	911	195	450	136	151	3,416	1,132
Forecast 1936	1,992	468	1,460	873	295	434	113	138	3,313	...

1) Not including China, Iran, Turkey and Iraq — 2) Not including U.S S.R.

As regards autumn sowings, these are somewhat backward in some European countries on account of the dryness of the soil and of the small amount of rain which fell in October, but the situation greatly improved during November and field work is progressing actively so that towards the end of the month sowings should be almost completed. Germination is fairly satisfactory, but in some regions it appears rather uneven. Taken as a whole, however, the condition of the crops is better than last year at the same period. No numerical estimates can as yet be made in regard to areas cultivated, but it gathered that the total area sown to wheat in Europe will be somewhat in excess of the area last year, when work was seriously hampered by persistent drought at the beginning and by excessive rains at the end of the autumn.

In the U. S. S. R. data for sowings of all winter crops effected towards the end of October and comprising principally wheat and rye, indicate that the plan for autumn sowings will be completely fulfilled. Generally speaking the weather has been favourable for sowings and germination and crop condition towards the end of November was considered excellent.

In North America sowings were generally made under good conditions and towards the end of November the crops showed good progress almost everywhere. In some limited localities of the Winter Wheat Belt and in the Pacific region, moisture was not yet sufficient. It is expected that there will be an increase in the area sown to winter wheat, statistics from trade sources even forecasting a record area, but definite figures regarding the extent of the increase will only be available when the official estimate is published next month.

In North Africa, which has suffered from drought this autumn, abundant rains fell between mid-October and mid-November and the situation has considerably improved. Sowings are also progressing under satisfactory conditions in India, where an increase in area sown to wheat is expected.

G. Capone.

CEREALS

Germany: During October the weather was rather cold and damp and in some districts there were even severe frosts. In fact, the beginning of the winter season was almost unfavourable for winter cereals as field work was considerably delayed. In some districts sowings of winter wheat have not yet been completed and in general the growth of seasonal crops is not at the present moment sufficiently advanced.

Complaints have been received of disease and of some damage caused by a serious incursion of field mice and snails.

Crop condition on 1 November, estimated according to the system in use in this country and compared with the figures for 1 November, 1935 was as follows: winter wheat 3.0 (2.5); rye 3.0 (2.6); winter barley 2.8 (2.4) and winter spelt 2.9 (2.5).

Belgium: The beginning of October was characterised by a drop in temperature accompanied by night frosts; towards the middle of the month the weather became milder and fine; during the last ten days however abundant rains alternated with sunny weather. Generally speaking meteorological conditions did not seriously hamper seasonal field work. During the first fortnight sowings of wheat were completed. Rye and winter-barley have sprouted well, while the first wheat seedlings are sprouting and the ground is already becoming green.

Estonia: At the beginning of October there had been no day frosts but towards the middle of the month the nights had become very cool and in some districts the temperature went below 8°. There was abundant rain and the low-lying regions even suffered from floods.

The harvest was brought in and the cereals threshed under good conditions although in some cases threshing was hampered by rain.

Irish Free State: October was favoured with exceptionally fine dry weather, favouring preparation of the soil until the last few days, when rain fell.

France. The weather during October was, generally speaking, fine, cold and dry, with some hoar frost in the central uplands and in the east, particularly during the first fortnight; later the temperature rose and more or less abundant rains fell in several regions during the last week. Autumn field work and sowing were, generally speaking, somewhat delayed on account of the dryness of the soil at the beginning of the month, especially in certain of the departments in the south-west, in the central mountains, in the western central region, in the east and in the southern portion of the Parisian basin (Loiret); for the same reason sprouting has been rather unequal. In the Parisian basin and in the north however, conditions have been on the whole satisfactory.

During the first decade of November the weather was rather rainy, especially in the north, in the Parisian basin and in the west, where field work and sowings were held up; the rains, however, did much good in the districts which had suffered from drought.

Crows and field mice were notified as being numerous in several departments and their presence is causing anxiety for the wheat sowings.

Great Britain and Northern Ireland: October was notable for severe gales in England and Wales throughout the month and in Scotland in the last week. Rainfall in England and Wales was below average but in that country and in Scotland conditions were generally favourable for farm work. In Scotland, however, late harvested crops suffered from the wet and windy weather at the end of the month.

Wheat.

COUNTRIES	† AREA					† PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37		1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37	
				1935 — 1935/1936 = 100	Aver. = 100							1935 — 1935/1936 = 100	Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 5,151	5,205	5,310	99.0	97.0	1) 101,909	102,894	102,128	1) 169,845	171,487	170,209	99.0	99.8
Austria	629	609	535	103.2	117.5	8,109	9,306	7,576	13,514	15,509	12,626	87.1	107.0
Belgium	386	387	384	99.6	100.4	9,447	8,868	8,836	15,744	14,780	14,726	106.5	106.9
Bulgaria	2,822	2,729	3,078	103.4	91.7	35,583	28,755	31,719	59,304	47,925	52,864	123.7	112.2
*Denmark	295	312	259	94.5	114.0	...	8,865	6,679	...	14,774	11,131	...	...
Spain	w) 10,768	11,254	11,237	—	—	72,896	94,793	94,850	121,490	157,985	158,080	76.9	76.9
Estonia	160	154	127	103.5	126.0	1,440	1,360	1,322	2,399	2,267	2,203	105.8	108.9
*Irish Free State	...	163	43	...	...	...	4,011	1,019	...	6,686	1,698	...	...
Finland	215	174	71	123.6	303.7	3,265	2,540	1,105	5,442	4,233	1,842	128.5	295.4
France	12,719	13,252	13,281	96.0	95.8	146,612	170,973	183,193	244,349	284,949	305,316	85.8	80.0
Engl and Wales	1,703	1,772	1,450	96.1	117.4	29,949	36,355	28,932	49,915	60,592	48,220	82.4	103.5
Scotland	94	101	66	93.3	141.5	1,994	2,666	1,649	3,323	4,443	2,748	74.8	120.9
*Northern Ireland	7	9	5	75.8	134.0	...	217	119	...	362	198	...	...
Greece	2,104	2,092	1,623	100.5	129.6	14,246	16,308	11,048	23,743	27,180	18,414	87.4	128.9
Hungary	4 107	4,135	3,943	99.3	104.2	52,046	50,535	45,904	86,741	84,223	76,506	103.0	113.4
*Italy	...	12,422	12,170	...	...	..	170,076	151,564	...	283,454	252,602	...	...
Latvia	319	347	262	91.8	121.8	3,150	3,912	3,302	5,251	6,520	5,503	80.5	95.4
Lithuania	485	536	505	90.4	95 9	4,519	6,056	5,455	7,532	10,093	9,092	74.6	82.8
Luxemburg	43	43	30	100.0	142.0	616	613	448	1,027	1,022	747	100.5	137.5
Malta	10	9	9	105.3	103.9	141	107	179	236	179	299	131.5	78.8
Norway	75	59	32	126.9	230.8	1,297	1,122	482	2,162	1,869	804	115.7	268.9
Netherlands	375	380	267	98.5	140.3	9,755	9,992	7,082	16,259	16,653	11,802	97.6	137.8
Poland	4,302	4,335	4,280	99.3	100.5	46,959	44,331	44,561	78,263	73,883	74,267	105.9	105.4
Portugal	...	1,377	1,321	..	...	5,036	13,256	10,871	8,393	22,092	18,118	38.0	46.3
Romania	8,481	8,496	7,704	99.8	110.1	77,230	57,864	62,069	128,715	96,438	103,446	133.5	124.4
Sweden	694	674	707	103.0	98.2	13,547	14,167	14,351	22,579	23,611	23,918	95.6	94.4
Switzerland	171	150	142	114.0	120.6	2,818	3,594	2,692	4,696	5,989	4,486	78.4	104.7
Czechoslovakia 2)	2,291	2,380	2,131	96 3	107.5	33,350	37,257	32,230	55,582	62,094	53,715	89.5	103.5
Yugoslavia	5,463	5,313	5,099	102.8	107.1	64,454	43,861	47,697	107,421	73,100	79,494	147.0	135.1
Total Europe	*64,944*	*65,963*	*63,594*	*98.4*	*102.1*	*740,368*	*761,485*	*749,681*	*1,233,925*	*1,269,116*	*1,249,445*	*97.2*	*98.8*
*U.S.S.R. (u)	34,721	32,507	27,080	106.8	128 2	...	263,597	217,208	...	439,319	362,006	...	...
(s)	...	60,786	58,721	...	...	...	416,086	337,518	. .	693,464	562,519	...	...
Canada	25,289	24,116	25,682	104.9	98 5	140,100	166,403	209,136	233,500	277,339	348,560	84.2	67.0
United States (w)	37,875	33,353	37,073	113 6	102.2	311,400	278,522	331,252	519,000	464,203	552,087	111.8	94.0
(s)	13,184	17,995	17,098	73.3	77.1	64,800	95,545	107,744	108,000	159,241	179,574	67.8	60.1
Mexico	1,217	1,199	1,244	109.5	97.9	7,796	6,167	7,248	12,993	10,279	12,080	126.4	107.6
Total North Amer.	*77,565*	*76,663*	*81,097*	*101.2*	*95.6*	*524,096*	*546,637*	*655,380*	*873,493*	*911,062*	*1,092,301*	*95.9*	*80.0*
*Chosen	...	800	809	...	..	...	5,848	5,429	...	9,747	9,048	...	...
India	33,631	34,490	33,315	97.5	100.9	211,344	217,907	214,368	352,240	363,179	357,280	97.0	98.6
Japan	1,686	1,627	1,356	103.7	124.4	27,117	29,233	22,080	45,194	48,721	36,799	92.8	122.8
Manchukuo	2,644	2,420	3,243	109.2	81.5	18,409	22,179	27,066	30,680	36,964	45,109	83.0	68.0
*Palestine	...	...	480	...	...	...	2,271	1,523	...	3,785	2,538	...	...
*Syria and Leb	1,305	1,288	1,245	101.3	104.8	...	10,026	8,783	...	20,043	14,638	...	...
*Turkey	8,776	8,474	7,567	103.6	116 0	3) 48,170	55,585	55,878	3) 80,281	92,640	93,128	—	—
Total Asia	*37,961*	*38,537*	*37,914*	*98.5*	*100.1*	*256,870*	*269,319*	*263,514*	*428,114*	*448,864*	*439,188*	*95.4*	*97.5*
Algeria	4,291	4,095	3,893	104.8	110.2	16,656	20,120	19,543	27,759	33,532	32,571	82.8	85.2
*Cyrenaica	...	52	20	...	...	...	...	47	...	...	78	...	...
Egypt	1,464	1,463	1,560	100.0	93.8	27,421	25,933	25,877	45,701	43,221	43,128	105.7	106.0
*Eritrea	...	11	13	...	...	...	66	44	..	110	73	...	...
*Kenya 4)	...	48	44	...	...	...	343	268	...	572	447	...	...
French Morocco	3,142	3,616	2,887	86.9	108.9	7,945	12,022	17,705	13,242	20,036	29,509	66.1	44.9
*Tripolitania	...	30	20	...	...	...	106	81	...	176	134	...	...
Tunisia	...	1,829	1,995	...	...	4.630	9,921	7,774	7,716	16,534	12,956	46.7	59.6
Total North Africa.	§) *10,726*	*11,003*	*10,335*	*97.5*	*103.8*	*56,652*	*67,996*	*70,899*	*94,418*	*113,323*	*118,164*	*83.3*	*79.9*
*Argentina	5) 17,359	5) 14,209	5) 19,369	122.2	89.6	...	83,776	146,361	...	139,624	243,930	...	...
*Chile	...	2,051	1,763	...	...	...	20,505	16,387	...	34,175	27,311	...	...
*Uruguay	...	1,201	1,055	...	...	...	7,708	5,926	...	12,846	9,876	...	...
Un. of S. Afr. 4)	2,466	2,501	1,516	98.6	162.6	9,488	12,117	7.380	15,813	20,195	12,301	78.3	128.6
Australia	12,640	11,924	15,223	106.0	83.0	77,700	85,559	111,464	129,500	142,598	185,773	90.8	69.7
*New Zealand 6)	222	252	273	87 9	81.4	...	5,316	4,822	...	8,859	8,037	...	...
TOTALS	**§) 206,302**	**206,591**	**209,679**	**99.9**	**98.4**	**1,665,184**	**1,743,113**	**1,858,318**	**2,775,263**	**2,905,158**	**3,097,172**	**95.5**	**89.6**

See notes on page 796.

Rye.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . . .	1) 11,154	11,219	11,141	99.4	100.1	1) 169,498	164,866	172,215	1) 302,677	294,404	307,527	102.8	98.4
Austria	945	930	944	101.6	100.1	10,152	13,673	12,707	18,129	24,416	22,691	74.3	79.9
Belgium	525	529	553	99.3	94.9	7,893	10,372	12,018	14,094	18,522	21,461	76.1	65.7
Bulgaria	434	433	562	100.3	77.3	4,469	4,350	5,424	7,980	7,767	9,685	102.7	82.4
*Denmark	326	391	346	83.5	94,4	...	6,290	5,361	...	11,232	9,573	...	...
Spain	w) 1,471	1,415	1,494	—	—	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81.5
Estonia	338	357	365	94.5	92.6	3,392	3,810	4,437	6,058	6,804	7,923	89.0	76.5
*Irish Free State .	...	2	3	...	...	...	39	53	..	69	95	...	...
Finland.	593	598	553	99.2	107.2	7,143	7,706	7,710	12,755	13,760	13,768	92.7	92.6
France	1.634	1,668	1,747	98.0	93.5	15,674	16,448	17,932	27,988	29,372	32,022	95.3	87.4
Greece	166	182	173	91.2	95.6	1,418	1,222	1,231	2,531	2,183	2.198	116.0	115.2
Hungary	1,619	1,537	1,583	105.3	102.3	16,013	16,044	15,950	28,595	28,650	28,483	99.8	100.4
*Italy.	...	272	291	...	...	...	3,509	3,506	...	6,267	6,262	...	...
Latvia . . . w)	627	658	617	95.4	101.7	6,241	7,941	6,875	11,145	14,180	12,276	78.6	90.8
Lithuania . . .	1,216	1,267	1,217	96.0	99.9	11,328	14,124	12,668	20,229	25,221	22,621	80.2	89.4
Luxemburg . . .	19	19	20	100.0	98.0	256	253	273	456	452	487	100.9	93.7
Norway	15	15	16	95.3	90.5	241	271	256	430	483	458	89.0	94.0
Netherlands . .	587	519	440	113.1	133.3	11,244	10,323	8,771	20,078	18,434	15,662	108.9	128.2
Poland	14,403	14,293	14,215	100.8	101.3	141,758	145,881	142,456	253,139	260,502	254,387	97.2	99.5
Portugal	...	332	392	...	...	2,045	2,618	2,599	3,652	4,674	4.640	78.1	78.7
Romania	1,041	960	941	108.4	110.6	9,991	7,126	7,686	17,842	12,724	13,725	140.2	130.0
Sweden	527	560	552	94.2	95.6	8,307	9,585	9,427	14,834	17,116	16,833	86.7	88.1
Switzerland . . .	38	39	44	99.1	86.1	489	717	796	874	1,279	1,422	68.3	61.5
Czechoslovakia .	2,494	2,493	2,530	100.0	98.6	31,667	36,121	39,507	56,549	64,502	70,548	87.7	80.2
Yugoslavia . . .	628	623	612	100.8	102.6	4,484	4,323	4,605	8,007	7,720	8,223	103.7	97.4
Total Europe . .	§) *40,806*	*40,646*	*40,711*	*100.4*	*100.2*	*473,813*	*488,529*	*497,955*	*816,095*	*872,371*	*889,204*	*97.0*	*95.2*
*U. S. S. R. w)	57,426	58,607	64,255	98.0	89.4	...	465,565	486,374	...	831,368	868,528	...	...
Canada	635	719	858	88.3	74.0	2,446	5,379	5,006	4,368	9,606	8,939	45.5	48.9
United States. .	3,015	4,196	2,917	71.9	103.3	15,176	33,000	17,512	27,100	58,928	31,272	46.0	86.7
Total North Amer.	*3,650*	*4,915*	*3,775*	*74.3*	*96.7*	*17,622*	*38,379*	*22,518*	*31,468*	*68,534*	*40,211*	*45.9*	*78.3*
*Turkey.	909	756	656	120.2	138.6	3) 4,225	4,765	6,236	3) 7,544	8,508	11,136	—	—
Algeria. . . .	4	3	3	147.3	107.7	8	10	23	14	17	40	79.3	34.2
*French Morocco.	...	5	2	...	...	...	13	11	...	24	20	...	...
Total Africa. . .	—	—	—	—	—	—	—	—	—	—	—	—	—
*Argentina . . .	5) 2,100	5) 1,750	5) 1,645	120.1	127.7	...	2,800	5,545	...	5,000	9,901	...	...
TOTALS . . .	§) **44,460**	**45,564**	**44,489**	**97.6**	**99.9**	**491,443**	**526,918**	**520,496**	**877,577**	**940,922**	**929,455**	**93.3**	**94.4**

See notes on page 796

Barley.

COUNTRIES	† AREA					† PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 4,041	3,966	3,915	101.9	103.2	1) 76,434	74,682	69,512	1) 159,240	155,591	144,820	102.3	110 0
Austria	394	402	421	98.0	93.7	5,580	5,959	6,110	11,625	12,415	12,729	93.6	91.3
Belgium	98	96	89	102.0	110.3	963	2,059	2,112	2,007	4,290	4,400	46.8	45.6
Bulgaria	484	501	607	96.6	79 6	6,674	6,211	7,110	13,905	12,941	14,812	107 4	93.9
*Denmark	909	852	875	106 7	103 9	...	24,229	21,746		50,478	45,304	...	...
Spain	w) 4 528	4,549	4,682	—	—	37,690	46,589	53,442	78,523	97,062	111,340	80.9	70.5
Estonia	250	258	267	96 9	93.8	1,939	2,024	2,441	4,039	4,216	5,085	95 8	79 4
*Irish Free State	...	139	119	...	...	...	3,496	2,666	...	7,283	5,555	.	...
Finland	324	315	306	102.9	105.7	4,165	3,658	3,953	8,676	7,621	8,235	113 8	105 4
France	1,811	1,787	1,806	101,3	100,2	21,348	22,621	23,068	44,476	47,127	48,059	94.4	92.5
Engl and Wales	819	792	924	103.5	88 6	14,493	14,694	16,285	30,193	30 613	33,927	98 6	89.0
Scotland	74	77	84	96 7	88 2	1,434	1,702	1,711	2,987	3,547	3,565	84.2	83.8
*Northern Ireland	3	3	2	90 9	163.6	...	71	39	.	148	81	...	...
Greece	503	510	541	98 6	92 8	4,449	4,272	4,165	9,269	8,901	8,678	104 1	106.8
Hungary	1,134	1,057	1,167	107 2	97 2	12,832	12,268	14,029	26,734	25,558	29,227	104.6	91.5
*Italy	. .	481	529	.	. .	.	4,410	5,121		9,187	10,670	...	...
Latvia	468	477	450	98 2	104.2	3,615	4,511	4,341	7,532	9,398	9,044	80.1	83.3
Lithuania	529	508	490	104 2	108 1	4,777	5,547	5,150	9,951	11,556	10,730	86.1	92.7
Luxemburg	6	6	8	100 0	68 1	76	71	105	158	149	219	106.1	72.1
Malta 7)	5	5	6	103.1	80.7	83	65	128	173	136	267	126.5	64.6
Norway	149	153	140	97.4	106.9	2,683	2,720	2,349	5,589	5,667	4,893	98.6	114.2
Netherlands	107	100	64	106 9	167 7	2,646	2,512	1,598	5,512	5,234	3,329	105,3	165.6
Poland	2,934	3,012	3,000	97.4	97.8	31,306	32,372	31,874	65.221	67,442	66,406	96.7	98.2
*Portugal	...	160	173		.		1,068	955		2,226	1,990	...	...
Romania	3,978	4,079	4,571	97 5	87 0	35,534	20,367	35,311	74,031	42,431	73,567	174.5	100.6
Sweden	255	258	287	98.6	88 6	4,273	4,779	4,928	8,901	9,957	10,266	89.4	86.7
Switzerland	10	10	17	100 8	62 0	159	176	264	331	367	550	90.0	60 1
Czechoslovakia	1,565	1,594	1,694	98 2	92 4	22,462	23,400	27,259	46,797	48,752	56,791	96 0	82.4
Yugoslavia	1,051	1,044	1,054	100.7	99.7	9,322	8,279	9,087	19,421	17,248	18,931	112.6	102.6
Total Europe	*25,517*	*25,556*	*26,590*	*99.8*	*95.9*	*304,937*	*301,538*	*326,332*	*635,291*	*628,219*	*679,870*	*101.1*	*93.4*
*U S S R	...	21,604	18 219	...	...	..	179,946	139,610	.	374,895	290,859	...	...
Canada	4,433	3,887	4,076	114 1	108.8	34,908	40 308	39,400	72,726	83,975	82,083	86 6	88.6
United States	8,827	12,243	10,640	72 1	83 0	69,120	135,468	102,562	144,000	282,226	213,671	51.0	67.4
Total North Amer.	*13,260*	*16,130*	*14,716*	*82 2*	*90.1*	*104,028*	*175,776*	*141,962*	*216,726*	*366,201*	*295,754*	*59 2*	*73.3*
*Chosen	. .	2,548	2,448	...	. .	.	25,959	21,341	.	54,082	44,461	..	...
Japan	1,918	1,916	2,019	100.1	95.0	33,098	37,732	35,906	68,955	78,610	74,805	87.7	92.2
*Palestine	. .	...	453	..	...	...	1,500	1,006	. .	3,125	2,096	...	...
*Syria and Leb	736	715	797	102.7	92 4	..	7,548	6,977	.	15,725	14,535	...	...
*Turkey	4,458	4,260	3,593	104.6	124 1	3) 30,777	30,237	33,523	3) 64,120	62,994	69,841	—	—
Total Asia	*1,918*	*1,916*	*2,019*	*100 1*	*95 0*	*33,098*	*37,732*	*35,906*	*68,955*	*78,610*	*74,805*	*87.7*	*92.2*
Algeria	3,166	3,104	3,349	102 0	94.5	14,694	15,849	16,982	30,613	33,020	35,381	92.7	86.5
*Cyrenaica	...	151	90	...	...	. .		172	...	..	357	...	...
Egypt	282	281	319	100.6	88.6	5,196	5,021	4,851	10,825	10,461	10,107	103.5	107.1
*Eritrea	...	62	53	.	...	.	276	317	..	574	660	...	...
French Morocco	4,109	4,303	3,464	95 5	118.6	27,999	17,188	25,334	58,332	35,809	52,781	162.9	110.5
*Tripolitania	...	272	282	..	...	.	1,213	650	...	2,526	1,355	..	...
Tunisia	...	1,532	1,209	...	...	1,653	8,819	4,189	3,445	18,372	8,727	18.7	39.5
Total Africa	§) *9,089*	*9,220*	*8,341*	*98 6*	*109.0*	*49,542*	*46,877*	*51,356*	*103,215*	*97,662*	*106,996*	*105.7*	*96.5*
*Argentina	5) 1,915	5) 1,940	5) 1,642	98.7	116.6	...	10,141	13,474	...	21,128	28,071	...	...
*Chile	...	161	162	...	...	...	2,251	2,385	...	4,689	4,970	...	...
*Uruguay	...	33	14	...	...	...	217	84	. .	451	174	...	...
*Un of S Afr.	97	96	8) 62	100,9	155,4	...	808	8) 529	...	1,684	8) 1,101	...	...
*New Zealand 4)	25	28	28	90.0	89,4	...	373	315	...	776	657	...	...
TOTALS	§) **49,786**	**52,822**	**51,666**	**94.2**	**96.3**	**491,605**	**561,923**	**555,556**	**1,024,187**	**1,170,692**	**1,157,425**	**87.5**	**88.5**

See notes on page 796.

** *St. II Ingl.*

Oats.

COUNTRIES	†) AREA 1936 — 1936/37	 1935 — 1935/36	 Average 1930 to 1934 — 1930/31 to 1934/35	 % 1936 / 1936/37 1935 — 1935/1936 = 100	 Aver. = 100	†) PRODUCTION 1936 — 1936/37	 1935 — 1935/36	 Average 1930 to 1934 — 1930/31 to 1934/35	 1936 — 1936/37	 1935 — 1935/36	 Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37 1935 — 1935/1936 = 100	 Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . . .	1) 6,866	6,893	8,113	99.6	84.6	7) 126,079	118,734	136,318	1) 393,994	371,043	425,991	106.2	92.5
Austria	722	742	762	97.3	94.7	8,882	8,616	9,224	27,757	26,924	28,824	103.1	96.3
Belgium	691	714	716	96.8	96.5	11,440	17,050	16,114	35,749	53,280	50,355	67.1	71.0
Bulgaria	258	268	314	96.2	82.2	2,989	2,041	2,284	9,341	6,379	7,137	146.4	130.9
*Denmark	931	911	953	102.2	97.7	...	23,043	21,924	...	72,008	68,511	...	...
Spain	w) 1,358	1,848	1,935	—	—	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.8
Estonia	341	342	355	99.6	96.1	2,628	2,964	3,209	8,214	9,262	10,028	88.7	81.9
*Irish Free State .	...	614	623	...	...	...	13,792	13,284	...	43,099	41,513	...	...
Finland.	1,087	1,163	1,126	93.5	96.6	14,357	13,424	14,893	44,864	41,951	46,540	106.9	96.4
France	8,234	8,101	8,384	101.6	98.2	93,929	98,228	104,137	293,525	306,960	325,425	95.6	90.2
Engl. and Wales	1,417	1,418	1,581	99.9	89.6	23,162	25,491	27,655	72,380	79,660	86,422	90.9	83.8
Scotland	828	827	847	100.1	97.7	13,731	15,254	15,026	42,910	47,670	46,956	90.0	91.4
*Northern Ireland	265	273	289	97.2	91.6	...	5,828	5,955	...	18,212	18,608	...	...
Greece	...	337	339	...	...	2,632	2,209	2,179	8,226	6,903	6,810	119.2	120.8
Hungary	521	502	581	103.7	89.7	5,432	5,421	6,120	16,975	16,941	19,126	100.2	88.8
*Italy	...	1,047	1,133	...	...	...	11,358	12,236	...	35,495	38,237	...	...
Latvia	838	822	777	101.9	107.7	6,449	8,508	7,613	20,154	26,587	23,791	75.8	84.7
Lithuania . . .	883	841	880	105.0	100.3	7,108	8,807	8,351	22,211	27,523	26,097	80.7	85.1
Luxemburg . . .	66	66	70	100.0	94.5	940	984	981	2,938	3,075	3,067	95.5	95.8
Norway	210	215	236	97.7	89.3	3,880	4,010	3,904	12,126	12,532	12,201	96.8	99.4
Netherlands . .	318	316	350	100.7	90.9	5,787	6,202	6,346	18,085	19,380	19,830	93.3	91.2
Poland	5,569	5,521	5,434	100.9	102.5	57,982	57,275	54,153	181,192	178,982	169,226	101.2	107.1
*Portugal	...	516	425	...	...	...	2,131	2,034	...	6,660	6,356	...	...
Romania	1,986	1,970	2,178	100.8	91.2	18,675	13,089	16,928	58,360	40,904	52,899	142.7	110.3
Sweden	1,652	1,654	1,611	99.8	102.6	25,935	28,095	24,928	81,047	87,796	77,900	92.3	104.0
Switzerland . . .	26	25	40	103.5	64.9	456	445	715	1,427	1,392	2,235	102.5	63.8
Czechoslovakia .	1,888	1,898	2,000	99.5	94.4	26,860	22,644	30,655	83,938	70,763	95,795	118.6	87.6
Yugoslavia . . .	890	919	920	96.9	96.8	6,025	6,126	6,717	18,828	19,144	20,992	98.3	89.7
Total Europe . .	*36,986*	*37.402*	*39,549*	*98.9*	*93.5*	*477,541*	*478,215*	*513,904*	*1,492,311*	*1,494.420*	*1,605,942*	*99.9*	*92.9*
*U. S. S. R. . .	...	45,271	42,248	...	..	...	402,746	322,460	...	1,258,573	1,007,681	..	...
Canada	13,118	14,096	13,301	93.1	98.6	93,930	134,078	120,468	293,532	418,995	376,462	70.1	78.0
United States .	5) 34,440	5) 39,924	5) 37,556	86.3	91.7	250,880	382,934	315,201	784,000	1,196,668	985,003	65.5	79.6
Total North Amer.	*47,558*	*54,020*	*50,857*	*88.0*	*93.5*	*344,810*	*517,012*	*435,669*	*1.077,532*	*1,615,663*	*1,361,465*	*66.7*	*79.1*
*Syria and Leb. .	28	30	30	93.3	94.7	...	246	264	...	768	825	...	...
*Turkey	1,100	566	395	194.2	278.3	3) 5,266	5,114	3,333	3) 16,456	15,983	10,414	—	—
Algeria	477	434	516	110.0	92.5	3,750	2,332	3,525	11,719	7,288	11,014	160.8	106 4
French Morocco.	74	70	73	104.9	101.6	434	340	580	1,357	1,062	1,811	127.8	74.9
*Tunisia	...	74	77	...	...	...	397	534	...	1,240	1,667	...	...
Total Africa. . .	*551*	*504*	*589*	*109.3*	*93.7*	*4,184*	*2,672*	*4,105*	*13,076*	*8,350*	*12,825*	*156.6*	*101.9*
*Argentina . . .	5) 3,027	5) 2,953	5) 3,631	102.5	83.4	...	11,464	20,977	...	35,825	65,553	...	...
*Chile	...	244	197	...	...	...	2,135	1,858	...	6,672	5,806	...	...
*Uruguay	...	236	160	...	...	...	1,282	684	...	4,007	2,139	...	...
*Un. of S. Afr. 4)	785	...	8) 398	...	197.3	...	2,532	8) 1,794	...	7,912	8) 5,605	...	...
*New Zealand 6)	296	363	372	81.5	79.7	...	1,321	1,317	...	4,128	4,115	...	...
TOTALS . . .	**85,095**	**91,926**	**90,995**	**92.6**	**93.5**	**826,535**	**997,899**	**953,678**	**2,582,919**	**3,118,433**	**2,980,232**	**82.8**	**86.7**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including Saar Territory with a very small production — 2) Including spelt. — 3) Incomplete data — 4) Cultivation by Europeans only. — 5) Area sown. — 6) Area includes that for chaff, hay, feeding-off, etc. — 7) Barley and meslin. — 8) Year 1933 34.

Greece: According to information received from the Ministry of Agriculture, field work for winter sowings is progressing regularly. Weather conditions in October were, generally speaking, favourable to field work.

In spite of financial difficulties, the Ministry has been able to obtain the necessary quantity of seed for wheat sowings and this is distributed to farmers at a reduced rate.

It is interesting to note, moreover, that a fairly large area of land has recently been improved and sown this year to cereal crops.

Hungary: During the three weeks from 6 to 27 October the weather was colder than usual and precipitation was much more abundant than the average for the period.

The specific weight of cereals harvested this year fluctuates as follows:

Wheat	60.0 — 63.9 lb. per bushel
Rye	53.7 — 58.4 » » »
Barley	47.4 — 55.3 » » »
Oats	29.2 — 38.7 » » »

Towards the end of October field work for sowings of winter cereals was in progress. This work is very backward in many districts owing to the drought at the beginning of the work and to the subsequent rains.

Early sowings of winter cereals have sprouted equally and are growing well.

Autumn ploughing for spring sowings is progressing actively.

Italy: In the first half of October the weather was generally variable. In some provinces snow and frost hindered sowings of wheat, barley and oats. The second half of the month was characterised by fine weather. Sowings of winter cereals, save in some parts of the Islands where drought prevailed, were well developed and germination is regular. Field mice are reported in some provinces.

Latvia: October was characterised by frequent rains and very low temperature, particularly in the first half of the month. Precipitation was very heavy, exceeding the normal by 50-80 per cent. The excessively wet weather greatly hindered harvesting of hoed crops and retarded germination of winter cereals.

Luxembourg: Field work for the sowing of winter cereals was carried out under average conditions.

Poland: The autumn was exceptionally cold and precipitation excessive and preparation of the land, sowings and development were unfavourably affected. On 15 October condition of winter wheat and rye was 2.6 against 3.5 and 3.6 respectively last year as the same date, for barley the figure was 2.9 against 3.5. In the latter half of October the weather was cold and rainy. In some departments field-rice are reported to be rather numerous and causing damage.

Romania: During October the weather was, generally speaking, cold and wet. These conditions hampered and delayed sowings of winter cereals.

At the beginning of November the ground was too wet in Bukovina, and in the northern regions of Basarabia, Moldavia and Transylvania. In the rest of the country, with the exception of four departments, soil moisture was satisfactory.

In those departments which notified either too much or too little moisture the area sown to winter cereals is less than that sown by the same date last year. In the other departments and especially in the Danube Valley the area sown to winter crops is about normal.

Early sowings have sprouted evenly and are growing under favourable conditions. During the last week in October sowings were proceeding with a more accelerated rhythm.

Czechoslovakia: Generally speaking the weather during the first two decades of September was exceptionally hot and dry, during the third decade there was a sudden drop in the temperature. In October the weather was also very cold. This year sowings have been difficult and delayed by unfavourable conditions, and particularly by the hardness of the soil. Sowings, especially of wheat, have therefore not yet been completed in several regions. On account of the cold dry weather seedlings have sprouted with difficulty and irregularly. Early sowings of rye are, generally speaking, unsatisfactory. According to the system of classification in use the condition of those winter cereals which have already sprouted is considerably worse than last year on the same date, particularly in Bohemia and Moravia. Throughout the entire country the condition of the winter wheat crop on Novembre 1 was 3.2 as against 2.5 last year, winter rye was 3 3 as against 2.3 last year. Hardly any damage by insects or by disease has been notified. Field mice have, however, made their appearance in exceptionally large numbers and they constitute a danger for winter cereals.

According to the most recent estimate production of meslin this year is about 202.000 centals (348,000 short tons) against 219.000 (378 000) in 1935 and 269.000 (465.000) on the average of the five years ending 1934; percentages 92.1 and 74.8.

Yugoslavia· During the first fortnight in October the weather was mostly rainy and rather mild, thus hampering the field work for winter sowings, especially in the northeastern districts of the countries.

During the latter part of the month the weather became drier and sunny but with morning mists, and this change favoured the beginning of sowings of winter cereals.

U. S. S. R : On 10 November sowing of winter cereals had been carried out on 92,144,000 acres, or 97 per cent. of the plan, against 90,850,000 or 97 per cent of the plan at the corresponding date last year On 10 November 131,044,000 acres of the fields destined for spring crops (79 per cent of the plan) had been prepared; last year the figure was 107,171,000 acres (76 per cent).

Argentina· The report of 21 October is as follows

Buenos Aires province. — The general rains in the first two decades of October appreciably benefited the wheat crop, favouring earing in the north, centre and west On the whole crop condition was good; in the Atlantic coastal zone unit-yields are expected to be excellent. Locusts caused some slight local damage.

Santa Fé province. — Condition was good thanks to the general rains. In the north sowings suffered from drought but reacted favourably to the last rains, while in the south earing was in progress. Small and partial losses from locusts and hail are reported

Córdoba province. — Condition may be summarized as good in the centre and east, with a tendency to deteriorate toward the south; in the west sowings were sparse, especially in the zone of late varieties Due to the recent rains, an on the whole favourable reaction was, however, noted. In other areas condition was fair to good.

Entre Rios province. — The abundant rains at the end of September and in the second decade of October were very favourable, and led to a revival of the crop, which was in bad condition in the west and very much behind in the centre and east. Locusts and hail caused losses.

Santiago del Estero. — Prospects in the current season are very unfavourable, owing to the drought that prevailed throughout the province, save in the irrigated areas, where there was promise of satisfactory unit yields.

In the National Territory of the Pampa the weather was unfavourable in winter, with drought and frequent winds that delayed development.

The well distributed rains at the end of September and in the first half of October benefited the crops which on the whole promised satisfactory yields.

(Telegram of 18 November): Condition of wheat is good in all producing areas In the north threshing has already begun.

Canada: According to the most recent estimate the area sown to fall wheat this year is about 702,000 acres an increase of 36.6 per cent on that of last year and one of 13 per cent. on the five-year average

The area sown to fall rye is about 464,000 acres against 536 000 in 1935-36 and 613,400 on the average of the five years ending 1934-35, percentages 86.6 and 75.6

United States. In the week ending 29 October temperature varied widely between different parts of the country There was substantial rainfall over a broad belt of the interior but little was received in the eastern and western areas Some frost damage was reported in the interior. Prospects are unusually promising in the Winter Wheat Belt except in a few sections where drought still prevailed

In the following week temperature ranged from unusually low to somewhat above normal Additional rain fell in the interior Drought continued locally in some sections but snow improved conditions in the northwest

Winter wheat continued to make satisfactory progress except in a few districts.

Palestine: Weather in October was abnormally hot, due to easterly winds, consequently there was no dewfall Preparatory work for early dry sowings of cereal crops (afir) was being carried out in normal conditions throughout the country.

Turkey: According to the most recent estimate the area cultivated to spelt this year is about 315,000 acres against 247,000 in 1935 and 234,000 on the average of the five years ending 1934, percentages 127.7 and 134.3.

Egypt Tillage for the cultivation of wheat has commenced in October, and small areas in some provinces have already been sown by the end of the month The germination is satisfactory

Sowing of small areas under barley was began in some provinces during the second half of October and the germination is satisfactory

Harvesting of *sefi* millet was completed during September in Upper Egypt Preparation of the crop and storing are in progress The yield is expected to be normal.

The early crops of *nili* millet are progressing towards maturity in Middle Egypt, where harvesting was began in few areas Formation of the cobs is also in progress in Upper Egypt. Crop condition is normal

Kenya: Weather conditions in September were favourable for cereals and good crops were expected but some wheat rust was reported in the Rongai area.

French Morocco. The first decade of October was rainy but fine weather was subsequently restored everywhere Fairly heavy precipitation occurred in the north and centre but the rains were insufficient in the south.

Burning of stubble and preparatory cultivations continued in favourable conditions in the north and centre; weeds appeared after the rains at the beginning of the month and will have to be dug in so that sowings can be made in better conditions. Preparatory cultivation is less widspread than usual but measures have been taken to ensure the financing of the agricultural activities of the Europeans and to distribute hard wheat seed to the natives, who are lacking it. Sowings will thus be enabled to take place in normal conditions

Union of South Africa: In Cape Province during September the weather was exceptionally cold over the south-western districts, but the drought which had prevailed in most parts was broken by soft continuous rains which improved conditions in general to a large extent. It would appear that this season's wheat crop is smaller than was last season's, having been damaged in certain localities by lice and rust,

In the course of the month the drought was broken in the north-western districts. and farmers have regained courage. Generally speaking, the crops are in good condition, but in consequence of the lateness of the rain, little wheat has been sown, and the season is already too far advanced for further sowing.

Australia (Telegram of 16 November). In Western Australia the weather during the past month has been unfavourable, owing to the scantiness of the rain, and crop condition has deteriorated since the previous report. Rains have also been scanty in New South Wales, where appearance of the crop is unfavourable and yields are expected to be rather poor. In South Australia and in Victoria, on the other hand, the weather was favourable, in the former crop condition had improved and in the latter was reported to be good, with expectations of a plentiful yield.

MAIZE

Germany· According to the recent estimate the area cultivated to maize for grain this year is about 47,700 acres against 39,000 in 1935 and 8,200 on the average of the five years ending 1934, percentages 122 3 and 581.2

Hungary Towards the end of October harvesting was still in progress in many localities The delay was caused by the wet weather.

Ears are well-developed and numerous and the grains have ripened well.

Italy: The maggengo crop is confirmed to be good; that of cinquantino is considered satisfactory, temperatures below normal have somewhat hindered ripening

Romania The maize harvest was completed by the beginning of November. Crop condition at the time of harvesting was better than at the beginning of October.

Argentina (telegram of 18 Novembre) For 1936-37 a reduction in area sown is exported with respect to the preceding season Condition of first sowings is good.

United States. In the week ending 29 October husking of maize was interrupted in some places by rain but elsewhere good progress has been made. In the subsequent week rains retarded husking and cribbing of maize in the eastern Corn Belt but good progress was made in the west

French Indo-China. In Cambodia the drying of the crop was effected this year under good conditions, thanks to the comparative drought at the end of August and in September, it is confirmed that the crop in general is of better quality than those of the preceding years and it is also known that the quantity is very satisfactory (at least 7,000,000 centals and 12,000,000 bushels). The last crops harvested in Annam and Tonkin in September gave average or satisfactory results.

Java and Madura· The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area

	1936 acres	1935 acres
Area harvested in September	345,200	394,400
Area harvested from 1 January to 30 September	4,410,200	4,245,600
Area of standing crops at the end of September	1,219,200	981,800

Maize.

COUNTRIES	AREA					PRODUCTION							
	1936 — 1936/1937	1935 — 1935/1936	Aver. 1930 to 1934 — 1930/1931 to 1934/1935	% 1936 — 1936/37		1936 — 1936/1937	1935 — 1935/1936	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/1937	1935 — 1935/1936	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37	
				1935 — 1935/1936 = 100	Average = 100							1935 — 1935/1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Austria . .	152	162	156	94.0	97.7	2,978	2,813	2,960	5,319	5,023	5,286	105.9	100.6
Bulgaria . .	1,486	1,775	1,739	83.7	85.4	19,536	22,244	18,921	34,887	39,722	33,787	87.8	103.3
Spain . . .	...	1,086	1,080	...	...	...	16,215	15,628	...	28,956	27,906	...	...
France . . .	876	853	840	102.7	104.3	9,651	12,622	11,235	17,233	22,540	20,063	76.5	85.9
Greece . . .	...	551	611	...	...	...	4,221	4,534	...	7,538	8,096	...	...
Hungary	2,832	2,843	2,765	99.6	102 5	57,335	31,269	40,848	102,385	55,838	72,944	183.4	140.4
Italy . 1)	...	3,643	3,293	...	...	...	55,551	56,426	...	99,198	100,761	...	...
Italy . 2)	...		323	..	...	...		4,155	...		7,420	...	...
Poland. . .	219	230	233	95.4	94.2	...	2,788	1,875	...	4,978	3,349	...	. .
Romania . .	12,999	12,773	11,757	101.8	110.6	110,231	118,591	114,538	196,842	211,771	204,533	93.0	96.2
Switzerland.	...	2	2	...	...	...	53	65	...	94	116	...	...
Czecho-slovakia 3)	211	193	5) 218	109.5	96 9	4,163	2,581	5) 3,539	7,433	4,609	5) 6,319	161.3	117.6
Czecho-slovakia 4)	192	179	5) 141	107.4	136.7	2,760	1,320	5) 1,909	4,928	2,357	5) 3,409	209.1	144.6
Yugoslavia .	6) 6,450	6) 6,109	6) 6,178	105 6	104.4	112,555	66,765	89,037	200,992	119,224	158,995	168 6	126.4
Total Europe	...	*30,399*	*29,336*	...	...	...	*337,033*	*365,670*	...	*601,848*	*652,984*	...	...
U S. S R. .	...	7,998	9,418	...	...	...	61,509	85,891	...	109,838	153,377	...	...
Canada .	164	168	144	97.8	113.7	3,324	4,348	3,157	5,935	7,765	5,637	76 4	105 3
United States	98,517	95,333	103,284	103 3	95 4	855,120	1,283,312	1,282,974	1,527,000	2,291,629	2,291,025	66.6	66.7
Mexico . .	...	7,121	7,840	...	...	...	36,853	40,284	...	65,810	71,936	...	...
Total N. Am.	...	*102,622*	*111,268*	...	. .	. .	*1,324,513*	*1,326,415*	...	*2,365,204*	*2,368,598*	...	...
Manchukuo.	3,136	3,053	2,519	102.7	124.5	46,782	43,652	36,048	83,540	77,950	64,371	107.2	129.8
Syria & Leb.	...	80	62	...	...	...	831	610	..	1,483	1,090	...	...
Turkey. . .	1,031	1,012	959	101.9	107.5	7) 11,154	10,177	10,716	7) 19,917	18,173	19,135	—	—
Total Asia .	...	*4,145*	*3,540*	...	...	...	*54,660*	*47,374*	.	*97,606*	*84,596*	...	...
Algeria . .	15	15	22	95 8	66.3	132	88	141	236	158	251	149.6	94.0
Egypt . . .	...	1,635	1,881	...	...	...	37,236	38,542	..	66,494	68,825	...	...
Eritrea . .	...	10	26	...	...	...	79	227	..	142	406	.	...
Kenya 8). .	...	129	152	...	...	...	2,300	2,107	...	4,108	3,763	...	...
French Morocco . . .	1,043	959	848	108.7	122.9	5,278	3,072	3,496	9,425	5,486	6,242	171.8	151.0
Tunisia 9) .	...	44	47	...	...	...	132	130	...	236	232	..	...
Total N. Afr.	...	*2,792*	*2,976*	...	...	...	*42,907*	*44,643*	...	*76,624*	*79,719*	...	. .
Argentina .	...	10) 18,854	10) 15,250	...	...	..	219,793	189,911	...	392,489	339,127	...	. .
*Un. of S. Afr.	...	...	8) 11) 5,927	...	...	...	29,597	34,425	...	52,852	61,474	...	...
TOTALS a)	...	**158,812**	**162,370**	...	...	...	**1,978,906**	**1,974,013**	...	**3,533,771**	**3,525,024**	...	...
TOTALS b)	...	**166,810**	**171,788**	...	...	...	**2,040,415**	**2,059,904**	...	**3,643,609**	**3,678,401**	...	...

* Not included in the total. — *a*) Not including U. S S R — *b*) Including U S S. R. — 1) Spring crop (*maggengo*). — 2) Summer crop (*cinquantino*). — 3) Crop grown alone. — 4) Mixed crop. — 5) 1934 only. — 6) Area harvested. — 7) 37 vilayets only. — 8) Cultivation by Europeans — 9) Maize and sorghum. — 10) Area sown. — 11) Years 1933/34 and 1934/35.

Palestine: The maize yield is much below the normal, due to failure of spring rains. The decrease as compared with 1935 is one of about 25 per cent.

Egypt · Harvesting of *nili* maize is general in the south of the Delta and maturation of the early crops is progressing in the other localities where harvesting began. The state of the crop is average.

Union of South Africa: In September every preparation was made to commence ploughing for maize immediately after the first rains have fallen.

RICE

Italy. Forecasts of good production, despite damage caused by rather cold weather and stemrot, are confirmed

British Guiana · It was reported in September that owing to the heavy rains in he first half of the year the coming crop would be poor

Taiwan · Conditions for the second rice crop are fairly good.

French Indo-China At the end of September second crop, tenth month rice in Tonkin and second semester rice in Annam had a very satisfactory appearance; late rice, which had already been harvested, gave good unit yields In general, save in some few localities that suffered from drought, especially in the extreme south of Annam, the crop seemed likely to be good in Tonkin and Annam, particularly in the latter country In Cambodia, on the other hand, in consequence of excessive rains and inundations only an average crop is expected. In Cochin-China transplantings were everywhere carried out in September, growth of tranplantings was normal in the eastern provinces. There are no reports of damage from insects or other harmful animals

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area --

	1936 acres	1935 acres
Area harvested in September —		
Wet padi	382,800	334,100
Dry padi	5,400	2,700
Area harvested 1 January to 30 September.—		
Wet padi	7,910,700	7,647,800
Dry padi	970,900	947,700
Area of standing crop at the end of September —		
Wet padi	903,200	1,011,000
Dry padi	35,100	39,000

British Malaya With the exception of a few areas, the rainfall in August and September was below the average for these months throughout the Peninsula. Towards the end of September planting in Kedah was completed in the north and proceeded well elsewhere under satisfactory conditions. In Province Wellesley the low rainfall delayed planting somewhat, but in the earlier-planted areas the crop had made satisfactory growth. The shortage of water also delayed planting in the Krian district of Perak, while in Perak North and Central planting had been completed or was nearing completion in most areas. In Selangor, water shortage still remained a serious problem in practically all areas in Kuala Selangor district, including Panchang Bedena and Yanjong Karang. In Negri Sembilan the position was satisfactory except in Kuala Pilah, where times of planting had been irregular. In Malacca planting was completed and growth

Rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1936/37	1935/36	Average 1930/31 to 1934/35	% 1936/37		1936/37	1935/36	Average 1930/31 to 1934/35	1936/37	1935/36	Average 1930/31 to 1934/35	% 1936/37	
				1935/1936 = 100	Average = 100							1935 1936 = 100	Average 100
	1,000 acres					1,000 centals			1,000 bushels of 45 lb				
Bulgaria	15	19	18	81.2	85.0	315	380	342	699	844	761	82.8	91.9
United States	895	793	887	112.9	100.9	20,295	17,159	18,707	45,100	38,132	41,572	118.3	108.5
India 1)	77,786	75,698	75,579	102.8	102.9								
Japan	7,855	7,866	7,887	99.9	99.6	271,636	235,097	249,718	603,623	522,427	554,917	115.5	108.8
Turkey	88	111	71	79.0	123.7	2) 2,452	1,979	1,005	2) 5,448	4,399	2,233	—	—

1) First estimate - 2) 37 vilayets only

was generally satisfactory except in a few areas where some water shortage was experienced. Reports on the crop from Pahang were generally satisfactory and those from Kelantan were more optimistic than previously. The weather favoured ease of cultivation in respect of dry padi and the transplanting of long-term wet padi was being carried ont with remarkable rapidity.

Egypt. Harvesting of the general crops of *sefi* rice is about to be completed. The work is active in threshing, winnowing and storing. The late cultivation is in the way of getting full maturation. The yield is expected to be nearly 13 per cent., above the average.

Harvesting of *nili* rice was being carried out in October in the early crops, ripening is progressing in the general crops. Crop condition is normal.

POTATOES

With the production figures received from France and Czechoslovakia the numerical evaluation is now to hand for all the most important producer countries.

The forecast for the French crop, which two months ago was given with every reserve, has not been realised and the results of this season, thanks to the good weather conditions which have prevailed during the last month, may be considered good. In fact, this year's yield not only exceeds last year's rather scarce production by 12.5 per cent but it also exceeds the five-year average by 3 per cent.

An abundant crop is reported from Czechoslovakia, 21 per cent greater than that of 1935 and about 2 per cent in excess of the average; this season's yield is fairly near that of the good crop years 1934 and 1931.

Among producing countries of lesser importance for which data were still lacking, Austria and Bulgaria report good average crops.

Potatoes.

Countries	Area					Production							
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936	
				1935 = 100	Average = 100							1935 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 60 lbs.				
Germany s)	332	330	600	100.5	55.4	35,928	35,739	63,700	59,878	59,564	106,164	100.5	56.4
Germany t)	6,569	6,472	6,469	101.5	101.5	979,142	875,452	945,291	1,631,871	1,459,057	1,575,454	111.8	103.6
Austria	502	494	490	101.5	102.5	55,103	52,746	57,939	91,836	87,908	96,562	104 5	95.1
*Belgium	402	403	413	99.8	97.4	...	66,270	79,056	...	110,448	131,757	...	...
Bulgaria	35	36	34	97.6	104.4	2,667	2,663	1,590	4,445	4,439	2,650	100.1	167.8
*Denmark	186	186	175	100.1	106 5	...	27,170	25,827	...	45,282	43,044	...	...
*Spain	...	1,060	1 036	...	...	...	106,632	106,667	...	177,716	177,775	...	...
Estonia	183	182	170	100.6	107.9	21,483	19,681	19,143	35,804	32,800	31,905	109.2	112.2
*Irish Free State	...	336	345	...	...	...	57,731	55,223	...	96,218	92,039	...	...
Finland	210	204	191	102.9	109 8	29,158	27,978	23,417	48,596	46,629	39,028	104 2	124.5
France	3,487	3,490	3.496	99.9	99.8	355,164	315,700	344,723	591,928	526,156	574,527	112.5	103.0
England and Wales	456	463	476	98.5	95.7	59,427	64,490	69,091	99,045	107,483	115,151	92.2	86.0
Scotland	133	132	139	101.1	96.0	20,496	19,846	21,522	34,160	33,077	35,870	103.3	95.2
*Northern Ireland	132	129	138	102.1	95.7	...	19,862	20,392	...	33,103	33,987	...	...
*Greece	...	47	38	...	...	..	2,297	1,865	...	3,829	3,108	...	...
Hungary	726	695	711	104.5	102.2	58,689	30,703	38,893	97,813	51,171	64,820	191.2	150.9
*Italy	...	1,004	975	...	.	...	46,600	52,189	...	79,332	86,980	...	...
Latvia	296	306	251	96 8	118.0	27,489	32,213	27,887	45,815	53,688	46,477	85.3	98.6
Lithuania	442	435	423	101.5	104.5	44,806	39,105	44,057	74,675	65,174	73,427	114.6	101.7
Luxemburg	41	41	40	99.8	100.1	4,411	3,196	4,236	7,352	5,326	7,060	138.0	104.1
Malta	10	8	7	123 6	137.5	525	392	574	875	654	956	133.8	91.5
Norway	127	123	119	104.0	106.9	22,380	20,205	19,192	37,299	33,674	31,986	110.8	116.6
Netherlands	277	344	395	80.6	70.3	48,061	58,624	68,343	80,100	97,704	113,903	82.0	70.3
Poland	7,149	6,998	6,742	102.2	106.0	705,041	716,543	677,552	1,175.044	1,194,214	1,129,231	98.4	104.1
*Portugal	...	80	76	...	...	. .	11,305	13,305	...	18,842	22,174	...	...
*Romania	535	511	482	104.7	111.0	...	41,778	37,744	...	69,629	62,905	...	..
Sweden	319	319	331	99.9	96.3	41,249	38,374	40,936	68,746	63,956	68,226	107 5	100.8
Switzerland	116	113	116	102.6	100 5	12,787	14,956	16,190	21,311	24,927	26,983	85.5	79.0
Czechosl s)	104	99	90	105.2	116.6	7,107	5,975	6,770	11,845	9,958	11,284	119.0	105.0
Czechosl t)	1,769	1,751	1,688	101.0	104.8	197,843	163,284	194,859	329,732	272,135	324,758	121 2	101.5
*Yugoslavia	655	656	617	99.9	106.2	..	29,794	32,118	...	49,656	53,529	...	...
Total Europe	*23,283*	*23,035*	*22,978*	*101.1*	*101.3*	*2,728,956*	*2,537,865*	*2,685,905*	*4,548,170*	*4,229,694*	*4,476,422*	*107.5*	*101.6*
*U. S S. R.	...	18,226	14,724	...	...	...	...	1,070,731	...	...	1,784,516	...	...
Canada	496	507	556	97.9	89.2	39.063	38,670	46,160	65.105	64,450	76,934	101.0	84.6
United States	3,217	3.551	3,426	90.6	93.9	199 200	232,607	221,944	332.000	387,678	369,907	85.6	89.8
*Syria and Lebanon	...	18	18	...	...	...	1,004	903	...	1,673	1,505	...	...
*Turkey	130	115	100	112.6	130.5	...	2,831	2,711	...	3,885	4,518	..	...
Algeria s)	18	18	24	100.0	74.2	1,005	1,067	946	1,675	1,778	1,576	94.3	106.3
Algeria *t)	25	23	23	108.9	106.0	...	1,319	1,046	...	2,199	1,743	...	...
*Eritrea	...	1	1	...	...	...	8	6	...	13	9	...	...
*New Zealand	...	23	25	...	...	...	2,710	2,856	...	4,517	4,760	...	...
TOTALS	**27,014**	**27,111**	**26,984**	**99.7**	**101.1**	**2,968,224**	**2,810,209**	**2,954,955**	**4,946,950**	**4,683,600**	**4,924,839**	**105.6**	**100,4**

*) Countries not included in the totals. — *s*) Early potatoes. — *t*) Late potatoes.

Alterations in figures for countries whose crop has already been reported are of little importance; only Germany has raised the total yield by about one million quintals and the United States reports an increase of nearly 3 million quintals.

The yields already reported comprising among others the four large European producing countries as well as Canada and the United States and representing more than 90 per cent. of world production, exclusive of the U. S. S. R., reach a total this year of 2,968,000 centals (4,947,000 short tons), as against 2,810,000 centals (4,684,000 short tons) in 1935 and 2,955,000 centals (4,925,000 short tons), the average during the preceding five-year period.

The data which are still lacking in regard to production cannot make any serious difference to the figures for 1936 and this season's crop may be considered good.

* * *

Belgium: Potatoes were lifted in good conditions The yield of the late varieties was rather mediocre in many districts.

France: Lifting has been completed The harvest has been average and slightly inferior to that of last year. On the other hand, conservation will be more difficult in certain districts on account of mildew, which has caused abundant rot in about ten departments (about 30 per cent of the yield) and also, exceptionally, on account of the early frosts during the period of lifting

It should also be mentioned that though the yield of seed potatoes selected and accepted by the sanitary authorities is greater than that of last year and almost as great as that of two years ago (337,000 centals and 562,000 bushels as against 243,000 and 404,000 in 1935 and 375,000 and 625,000 in 1934), the proportion of tubers classified in the first category (Class 4) is relatively small (10 8 per cent as against 20.9 per cent in 1935 and 76.5 per cent in 1934)

Great Britain and Northern Ireland Lifting was carried out, in ideal conditions and was nearly completed by the end of the month In England and Wales disease was reported to be rather more prevalent than usual and there were doubts as to the keeping qualities of some of the crop

Hungary: Lifting of potatoes was still in progress in some places towards the end of October, generally speaking, however, the harvest was completed The tubers are well-developed and unaffected by disease

Poland· The exceptionally cold autumn and the excessive precipitation were unfavourable.

Czechoslovakia: Lifting of potatoes, which is already completed or in full swing, has given entirely satisfactory results The quality of the tubers is good except for cases of rot in several districts.

SUGAR

In those countries in which the work of lifting was not completed by the end of October or the beginning of November the weather was fairly favourable, the mild temperature and the rain which fell rather frequently making the ground soft and suitable for lifting the roots. In the U S S R., on the other hand, some difficulty was encountered in the use of machines and farmers had to lift the beets by hand, thus slackening the rhythm of the work.

Since the publication of the last Bulletin a few unimportant changes, as a result of recent information received, will have to be made in the estimate of

Production of Beet-sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1936-37	
	1936-37 1)	1935-36	Average 1930-31 to 1934-35	1936-37 1)	1935-36	Average 1930-31 to 1934-35	1935-36 = 100	Average = 100
	Thousand centals			Short tons				
Germany	38,363	36,905	36,757	1,918,118	1,845,244	1,837,850	104	104
Austria	3,314	4,539	3,842	165,700	226,950	192,101	73	86
Belgium .	5,456	5,229	5,490	272,800	261,456	274,476	104	99
Bulgaria	198	323	667	10,000	16,162	33,361	61	30
Denmark	4,630	5,379	3,468	230,000	269,000	173,392	86	134
Irish Free State	2,155	1,985	740	107,743	99,241	36,978	109	291
Finland	220	191	143	10,000	9,540	7,150	116	154
France	20,503	20,283	23,224	1,030,000	1,010,000	1,161,162	101	88
Great Britain	10,817	11,339	10,011	540,850	566,929	500,526	95	108
Hungary	2,844	2,579	3,166	142,000	128,926	158,302	110	90
Italy	7,231	7,069	7,884	362,000	353,458	394,199	102	92
Latvia	758	1,117	608	37,885	55,872	30,410	68	125
Lithuania	492	488	270	24,600	24,398	13,494	101	182
Netherlands	5,225	4,976	5 273	261,000	248,783	263 653	105	99
Poland	9,590	9,800	10 912	480,000	490,018	545,617	98	88
Romania	2,039	3,247	2 455	102 000	162,362	122,754	63	83
Sweden	6,614	6,493	5 036	300,000	324,628	251,811	102	131
Switzerland	198	185	165	10 000	9 300	8,230	107	121
Czechoslovakia	15,220	12,582	16 547	761,009	629,067	827,361	121	92
Yugoslavia	1,942	1,980	1,791	97,100	99,004	89,525	98	108
Total Europe a)	*137,809*	*136 689*	*138 449*	*6 862 805*	*6,830 338*	*6 922,352*	*101*	*100*
U S S R	44,093	44 093	27 580	2 000 000	2,000 000	1 378 999	100	160
Total Europe b)	*181,902*	*180,782*	*166 029*	*8,862 805*	*8 830 338*	*8 301,351*	*101*	*110*
Canada	1,594	1 362	1 316	79 700	68,099	65,814	117	121
United States	29,300	25 483	28 056	1,465 000	1,274 100	1 402 765	115	104
Total N America	*30 894*	*26 845*	*29 372*	*1,544,700*	*1,342,199*	*1 468 579*	*115*	*105*
Japan	1,014	784	629	51 000	39 190	31 470	129	161
Turkey	1,499	1 311	861	75 000	65,574	43,065	114	174
Total Asia	*2,513*	*2 095*	*1,490*	*126,000*	*104,764*	*74,535*	*120*	*169*
TOTALS *a)*	**171,216**	**165,629**	**169,311**	**8,533,505**	**8,277,301**	**8,465,466**	**103**	**101**
TOTALS *b)*	**215,309**	**209,722**	**196,891**	**10,533,505**	**10,277,301**	**9,844,465**	**103**	**109**

a) Not including U S S R — *b)* Including U S S R — 1) Approximate data

the crop yield in some countries, but these alterations will not increase the general total of world yield as anticipated in consequence of the favourable conditions during the last period of growth in almost all the beet-growing countries.

Leaving out the U R S S , whose statistics are still uncertain, European sugar-beet productions for the season 1936-37, according to present estimates, should exceed that of last season by 1 per cent -and be practically the same as the average yield for the five preceding seasons. The world total, on the other hand, thanks to the large yield obtained in the United States, shows an increase in sugar production for this season of 3 per cent over that of the year 1935-36, although, like that of Europe, it is almost equal to the average

In another table are indicated the stocks of beet- and cane-sugar at the beginning of the present season in comparison with that of 1935-36 and with those of the five previous seasons The stocks under consideration are those belonging to a fair number of European and several extra-European countries;

Visible stocks of sugar on 1 September 1).

COUNTRIES	1936	1935	1934	1933	1932	1931	1930
	(Thousand centals)						
Germany	7,965	8,188	5,657	7,597	16,453	16,378	6,850
Austria	2,033	1,422	196	315	154	672	278
Belgium	1,392	1,453	1,162	1,252	1,455	1,874	1,351
France	7,132	8,647	4,491	5,304	4,833	6,784	4,689
United Kingdom	3,754	4,852	5,944	6,989	4,663	4,828	5,415
Hungary	606	620	646	875	600	1,043	320
Italy	4,749	5,928	5,895	4,669	5,741	5,922	5,115
Netherlands	2,976	3,450	4,332	3,327	2,937	3,530	2,302
Poland	1,953	2,317	2,154	3,783	3,893	5,822	3,510
Romania	1,786	1,131	871	425	1,179	2,205	721
Sweden	2,632	2,754	2,972	2,156	2,088	2,568	1,947
Czechoslovakia	2,198	2,183	1,997	2,989	4,676	6,905	2,529
Total Europe	*39,177*	*42,945*	*36,317*	*39,681*	*48,672*	*58,531*	*35,027*
Canada	2,165	2,176	2,141	2,127	2,103	1,847	1,860
Cuba	27,075	28,149	45,623	49,567	52,369	56,042	61,134
United States (ports)	8,986	14,493	17,271	9,513	11,804	12,088	10,362
Puerto Rico	5,827	4,378	7,300	1,975	3,814	3,836	2,910
Java	20,245	35,323	53,156	65,945	64,280	43,610	32,880
Philippines	507	419	1,014	22	516	0	626
Afloat	5,732	8,422	5,291	5,534	7,165	5,776	4,850
TOTAL	**109,714**	**136,305**	**168,113**	**174,364**	**190,723**	**181,730**	**149,649**
	(Thousand short tons)						
Germany	398	409	283	380	823	819	342
Austria	102	71	10	16	8	34	14
Belgium	70	73	58	63	73	94	68
France	357	432	225	265	242	339	234
United Kingdom	188	243	297	349	233	241	271
Hungary	30	31	32	44	30	52	16
Italy	237	296	295	233	287	296	256
Netherlands	149	173	217	166	147	176	115
Poland	98	116	108	189	195	291	175
Rumania	89	57	44	21	59	110	36
Sweden	132	138	149	108	104	128	97
Czechoslovakia	110	109	100	149	234	345	126
Total Europe	*1,960*	*2,148*	*1,818*	*1,983*	*2,435*	*2,925*	*1,750*
Canada	108	109	107	106	105	92	93
Cuba	1,354	1,407	2,281	2,478	2,618	2,802	3,057
United States (ports)	449	725	864	476	590	604	518
Puerto Rico	291	219	365	99	191	192	146
Java	1,012	1,766	2,658	3,297	3,214	2,180	1,644
Philippines	25	21	51	1	26	0	31
Afloat	287	421	265	277	358	289	243
TOTAL	**5,486**	**6,816**	**8,409**	**8,717**	**9,537**	**9,084**	**7,482**

---

1) Many of these figures are taken from the *Monthly Report on Sugar* and the *Weltzuckerstatistik* of Licht

Sugar production.

(U. S. S. R. not included).

	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
	(Thousand centals)						
Europe	136,467	151,877	132,322	121,607	130,183	188,231	160,080
Total	601,203	549,835	543,882	523,445	556,427	601,247	593,553
	(Thousand short tons)						
Europe	6,823	7,594	6,616	6,080	6,509	9,411	8,004
Total	30,060	27,491	27,194	26,172	27,821	30,062	29,677

among the most important sugar producing countries who have already sent in their statements are, Canada, Cuba, the United States, Pùerto Rico, Java and the Philippines. Floating stock is also included. We are not publishing data for Spanish stocks this year as they are as yet unknown.

Countries omitted are those that have not yet published the figures of sugar stocks; the stocks shown in the table, although they do not represent the world total are sufficient in number and importance to afford an approximation of the general fluctuation of stocks.

From the table it may be deduced that European sugar stocks, which have been on the decrease since 1931, show a rise at the end of the 1935-36 season, following almost constantly the corresponding movement in the sugar yield. The great majority of European countries, with the exception only of Austria, Romania and to a small extent of Czechoslovakia, show a decrease in stocks from 1 September 1935 to 1 September 1936. The extra-European countries included in the table show a constant decrease in stocks as from 1 September 1932, the fall becoming more and more rapid every year till the deficit is more than 22,000,000 centals (1,100,000 short tons) between 1 September 1935 and 1 September 1936. A considerable amount of this decrease is due to the Java stocks, as this country after many years of sacrifice is now adjusting production to the consumer's demand.

Taking into account the data which are at present to hand regarding stocks, import and export trade and yield, an estimate may be made of the consumption of sugar. On the basis of this calculation it would appear that in Europe the consumption of sugar maintains the increase which commenced during the 1933-34 season, and this fact is confirmed by almost all official estimates of sugar consumption during the season 1935-36.

In extra-European countries also the consumption shows an increase which for the 1935-36 season is fairly considerable. The estimate of consumption calculated by the Institute has not as yet been confirmed by official estimates which will be published later by certain countries only; in the case of the United States, however, private estimates lead to the same conclusions.

E. R.

* * *

Belgium: The cold weather at the beginning of October yellowed the foliage of the beets and accelerated ripening.

Francia: The dry weather during the first three weeks of October favoured lifting later, and particularly during the first ten days of November, it was somewhat hampered by rains which were sometimes very abundant, but the work was already well advanced in all regions.

It would appear that this year the beet yield will be somewhat greater than last year in spite of a considerable reduction in area sown (see the Table of Provisional Estimates). It should be noted that the yield figure given in the table includes beets for distillation, which have not been considered separately since last year; these beets, taking an average during the period 1930-34, represent 14 per cent of the total production (about 29,000,000 centals and 1,400,000 sh. tons).

Great Britain and Northern Ireland: There was great improvement during October and the crop generally appeared better than appeared possible two months

Sugar-beet.

Countries	Area 1936	Area 1935	Area Average 1930 to 1934	Area % 1936: 1935 = 100	Area % 1936: Average = 100	Production 1936	Production 1935	Production Average 1930 to 1934	Production 1936	Production 1935	Production Average 1930 to 1934	Production % 1936: 1935 = 100	Production % 1936: Average = 100
	1,000 acres					1,000 centals			1,000 short tons				
Germany . .	961	921	887	104.3	108.3	252,435	232,984	232,837	12,622	11,649	11,642	108.3	108.4
Belgium . .	127	127	133	100.1	95.7	...	33,844	36,475	...	1,692	1,824	...	...
Bulgaria .	12	17	31	67.0	37.6	1,371	3,401	4,873	69	170	244	40.3	28.1
Denmark . .	122	124	97	98.4	125.9	...	41,339	26,711	...	2,067	1,336	...	...
Finland . .	8	7	6	109.3	140.1	1,764	1,517	1,214	88	76	61	116.3	145.3
France 1) . .	710	748	780	94.9	91.0	176,428	183,379	198,168	8,821	9,169	9,908	96.2	89.0
Engl.and W .	357	367	319	97.2	111.9	64,774	75,040	63,836	3,239	3,752	3,192	86.3	101.5
Scotland . .	7	7	3	94.0	279.4	...	1,478	490	...	74	25	...	...
Hungary . .	122	116	128	104.6	95.1	24,122	16.953	22,676	1,206	848	1,134	142.3	106.4
Italy. . . .	...	227	238	. .	...	...	51,252	56,494	...	2,563	2,825	. .	...
Latvia . . .	...	38	2) 29	...	...	...	6,471	3) 5,749	...	324	3) 287	...	...
Lithuania .	17	17	8	100.0	210.2	...	2,998	1,423	..	150	71	...	..
Netherlands	108	102	111	106.5	97.3	35,274	33,648	37,188	1,764	1,682	1,859	104.8	94.9
Poland . . .	297	293	327	101.3	91.0	..	55,128	62,945	...	2,756	3,147	...	...
Rumania	72	91	81	79.5	88.9	...	13,812	12,292	...	691	615	...	...
Sweden . .	126	125	105	100.7	119.5	40,477	41,138	32,391	2,024	2,057	1,620	98.4	125.0
Switzerland	4	4	4	113.3	119.4	1,543	1,323	1,161	77	66	58	116.7	132.9
Czechoslov	381	387	425	98.4	89.7	92,452	80,521	100,434	4,623	4,026	5,022	114.8	92,1
Yugoslavia	75	74	100	100.4	75.1	...	10,675	14,001	...	534	700	...	...
U. S. S. R.	4) 3,021	3,027	3,144	99.8	96.1	...	357,371	233,612	...	17,868	11,680	...	...
Canada.	56	53	49	106.5	113.2	11,380	9,316	9,283	569	466	464	122.2	122.6
United States	819	763	801	107.3	102.2	190,000	158,160	178,884	9,500	7,908	8,944	120.1	106.2
Turkey	61	51	38	119.5	158.0	...	6.614	5,603	..	331	280	...	...

1) Including beets for usines — 2) Average 1932 to 1931 — 3) Average 1933 and 1934 — 4) Area sown on 15 May, those estimate by Plan in 3,076,000 acres

previously. The roots continued to show good growth and sugar content to increase.

Hungary: Lifting and carting of sugar-beets was in progress towards the end of October. Generally speaking, the roots are fairly well-developed and unaffected by disease.

Netherlands According to the analysis of sugar-beets made during the first week of October, the average weight of the roots is 27 ounces, as against 28 ounces on an average for the same period during the four preceding years. The weight of sugar per root has been calculated at 6.1 ounces as against 4.9 ounces for the same average.

Poland The exceptionally cold autumn and the excessive precipitation were unfavourable.

Czechoslovakia The sugar-beet crop has been so abundant this year that a portion has been used for cattle fodder.

U. S. S. R. : On 25 October the plan for sugar-beet harvesting was carried out to the extent of 75 against 93 per cent at the same date last year. Harvesting is progressing satisfactorily in Odessa, Kiev and Vinnica but is considerably behind in Voronezh and Kursk. Transport is proceeding slowly. On 25 October about one-third of the beet in Ukraina remained on the fields.

Barbados: Good showers it September benefited the cane crop.

British Guiana: Weather conditions in September were very hot and dry. Grinding of the autumn crop was progressing satisfactorily and good yields were reported.

Jamaica: According to the most recent estimate production of cane-sugar in 1935-36 was about 2,049,000 centals (102,400 short tons) against 1,719,000 (86,000) in 1934-35 and 1,354,000 (67,700) on the average of the five seasons ending 1933-34; percentages 119,2 and 151,3.

Leeward Islands: It was reported in September that prospects for next year's sugar crops in Antigua and St Kitts continued to be very favourable.

St. Lucia: According to the most recent estimate production of cane-sugar in 1935-36 was about 181,000 centals (9,100 short tons) against 163,000 (8,200) in 1934-1935 and 117,000 (5,900) on the average of the five seasons ending 1933-34, percentages 111.4 and 155.2.

Trinidad: Weather conditions in September were seasonable, but rainfall was somewhat heavier than usual. The young canes were in very healthy condition and prospects for the 1937 crop were promising.

Formosa: The condition of the sugar-cane crop, which is at present being cut, is fairly satisfactory. Germination of the cane which has just been planted is progressing normally.

French Indo-China: Growth was satisfactory at the end of September in Tonkin and Annam except in some districts where the crops have suffered either from drought or from excess of rain, in some districts in Tonkin the cane has already been cut and the yield is good (125-250 centals) (6-12 short tons) per acre

Iran: According to recent estimates the sugar-beet crop in the province of Farsistan is estimated this year at about 170,000 centals (8,500 short tons). This yield is three times greater than that of 1935.

Java and Madura: Throughout the sugar-cane area warm cloudy weather continued to prevail and there were only slight local showers. New plantings were generally very satisfactory though in places the reduced water supply resulted in rather thin canes.

Egypt: The early crops of sugar-cane began maturation, the rest of the cultivations are progressing in the growth and the formation of the internodes. Irrigation is active and cutting of the areas destined for consumption is progressing. Crop condition is normal.

Mauritius: Weather conditions in September were fair, but rainfall was deficient. The revised official estimate of the sugar crop is 5,500,000 centals (275,000 short tons) as compared with 6,184,000 (309,000) in 1935-36 and 4,729,000 (236,000) on the average of the preceding five seasons Percentages 89 and 116.

Union of South Africa: Crop condition in September averaged 6 per cent. below normal. Weather favoured growth but more rain was needed. The increase in the estimate of production is due to the improved sugar content

According to the most recent estimate production of cane-sugar in 1936-37 will be about 8,860,000 centals (443,000 short tons) against 8,346,000 (417,300) in 1935-36 and 7,312,000 (365,600) on the average of the five years ending 1934-35 percentages 106.2 and 121.2.

VINES

The vintage which is still in progress in the majority of wine-growing regions, has been hampered by the bad weather which prevailed during either the first or the second half of October, sometimes lasting throughout the month. In consequence there has been further crop loss from rot in certain of the most important vine-growing regions and particularly in Central and Northern Italy, in South-west and Central France and in certain cases there has also been a decline in quality.

The deficit in the crop seems to be considerably more serious than was estimated last month in France and in Italy. According to the most recent information received, the French crop will be at least 40 per cent less than that of last year and a good quarter less than the average of the five preceding crops; this year's vintage will thus take rank with the very bad crop of 1926 (937 million Imperial gallons or 1,125 million American gallons) which represented the absolute minimum. The situation in Italy would appear to be similar; the yield for 1936 is as low as that of 1930 - 671 million Imperial gallons (806 million American gallons) - the lowest crop registered in Italy up to the present; the deficit in relation to last year's crop is 40 per cent; while it had been estimated that this year's yield would approach the average for the last five-year period 1930-1934, already quite a low average, it appears now that it will be about 20 per cent below this level. As regards Spain, it appears that the vintage, where the crop has been harvested, is good in La Mancha and certain regions bordering on that department, but production has, on the other hand, been mediocre in Catalonia and in certain other coastal provinces. Theoretically, the Spanish yield could be estimated this year at two-thirds of a normal crop (440 million Imperial gallons - 530 million American gallons), after making the necessary reservations dependent on the present situation in that country.

Details are still not to hand regarding production in Portugal, while the information published hereunder regarding Greece shows a considerable deficit in the crop. Estimates of the North African crops are the same as for last month (barely 220 to 260 million Imperial gallons or 260 to 310 million American gallons).

It is now possible to fix the total yield in the Danubian countries, Romania, Yugoslavia, Hungary and Bulgaria at from 300 to 330 million Imperial gallons (360 to 400 American gallons) as against 418 million Imperial gallons (502 million American gallons) last year and an average of 405 million Imperial gallons (486 million American gallons). The crop in Romania is definitely bad (40 to 50 per cent less than last year, and a good third below the previous five-year average); it is also bad in Bulgaria, it will be average in Yugoslavia and good in Hungary.

Central European production seems also to be lower than the average and below that of last year.

In the United States the deficit in relation to last year will still represent a good average yield.

On account of the revision of the estimates for France and Italy it is necessary to correct the total estimate of the wine crop for the northern hemisphere made last month; it must be reduced by a good 300 million Imperial gallons (400 million American gallons). As far as can be conjectured in the absence of any official evaluation, this year's production will barely exceed 2,800 million Imperial gallons 3,400 million American gallons), exclusive of the U. S. S. R.; it will therefore slightly exceed the smallest vintage since the war, i. e. that of 1926 with 2,770 million Imperial gallons (3,330 million American gallons) in round numbers, and the yield will be less than that of any other crop during that period. The deficit in relation to the last five-year average will be about 900 million Imperial gallons (1.100 million American gallons), i. e. about 25 per cent.

It should be remarked, however, that in consequence of the good 1935 crops the stocks carried over from former crops are abundant not only in the important vine-growing countries but also in the lesser countries.

It is estimated that France, Italy and even Spain have sufficient carryover to maintain a normal wine consumption. In France and Algeria it may be estimated that the stock of old wine exceeds the normal volume by more than 400 millions Imperial gallons (500 million American gallons), i. e. in a proportion equal to at least 30 per cent of a normal vintage, and therefore in excess of the relative deficit of the year's production.

In Spain the remaining stock was estimated at 30 per cent of a normal crop, or about equal to the deficit. In Italy, it would appear that a considerable quantity of wines are still in hand, and it is planned to distil a portion of this quantity on account of its low alcohol content.

Therefore, in spite of the bad vintage this year, the total volume available at the beginning of the vintage year 1936-37 does not present a very serious deficit in relation to the average for the five years prior to 1935, namely 10 per cent at most.

The quality of the vintage is variable, fairly good in general in France, less good in Italy and unequal in the other countries.

P V

* * *

Bulgaria· In consequence of the frequent rains during the last few months oidium seriously affected vintage results The first official estimate of production is 6,476,000 centals against 12,250,000 in 1935 and 8,563,000 on the average of 1930-34; 52.9 per cent and 75.6 per cent.

This is the lowest of the last ten years, taking into consideration the steady increase in vine area.

France: No extension of cryptogramic diseases has been notified during the period prior to the vintage in the south-west, central and eastern regions On the other hand, the early frosts at the beginning of October were particularly unfavourable, delaying and even endangering the ripening of the grapes in some of the vine-growing regions; in most of the vineyards where the grapes had not already been harvested a large proportion of frost-bitten grapes was thus added to a vintage already attacked by rot.

On account of this new damage and the receipt of more detailed information regarding the results of the grape harvest in the south, the estimate given last month of the total yield of grapes must be revised. The first statements regarding the vintage in the department of Hérault show an average deficit of 40 per cent on last year's figures and it is to be expected that the total yield in the four southern departments will not greatly exceed 440 million Imperial gallons (530 American gallons). The deficit in comparison with last year seems to be important also in the south-west and often more considerable in the other regions. The total yield in France in 1936 would seem to be no longer fairly near the minimums of the last five-year period but to approach those of the entire period since the War, namely those of 1926 and 1930, years of very serious cryptogamic damage.

While admitting the purely conjectural character of this estimate, it would nevertheless appear that the total vintage will be between 880 and 990 million Imperial gallons (1,050 and 1,190 million American gallons), and that in any case it will not exceed the latter figure.

On the other hand, however, though very unequal, the quality of the vintage as a whole would seem to be fairly satisfactory.

In Vaucluse, in the south-east, late table grapes have also suffered from frost and from the fall in the temperature.

Stocks remaining from previous production are still very abundant. Stocks declared by viticulturists at the end of the season 1935-36 show a total of 255 (306) million gallons, and this is merely a partial estimate exclusive of small vinegrowers, taking trade stock into account it may be estimated that the total availability of old wine at the end of the season exceeds the normal stock (for the period prior to the viticultural crisis, 1928-29 or 1929-30) by from 330 to 440 (400 to 530) million gallons.

The total availability of French wines, inclusive of private and trade stocks, would seem to be around 1,500 to 1,600 (1,800 to 1930) million gallons, a level more or less equal to that of the good years prior to 1934: 1929, 1931, 1933, this figure is in any case in excess of the average volume of availability during the period 1930-34 (1430 [177c] million gallons). With the addition of the Algerian and Tunisian stocks this amount is amply sufficient to meet be requirements of even a broad estimate of consumption.

Greece: Definite information is not yet to hand regarding the development of vines during September and October, but according to reports received recently from the Ministry of Agriculture, considerable damage has recently been caused to the vines.

It is stated that the damage suffered varies from 40 to 50 per cent. in the districts of Samos, from 50 to 65 per cent. in those of Leucadia while in Crete the damage amounts to 40 per cent.; the Islands and Euboea have been less affected (about 25 per cent.).

Hungary· The vintage was completed throught most of the country by the beginning of November. The quantitative yield is generally somewhat above the average.

Italy: In the first half of October weather was generally unfavourable, partly hindering the vintage and in some provinces causing rot . The grapes ripened with difficulty Forecasts of a poor production are confirmed.

Romania: At the beginning of November the grape harvest was almost completed. The vintage is good in Transylvania, average in Muntenia and generally poor in Moldavia and Basarabia. The wine yield will probably be lower than the average by about 30 per cent. and will fluctuate between 110 and 130 million Imperial gallons (130 to 160 million American gallons).

The quality is not uniform but generally speaking will not be so good as that of last year.

Yugoslavia: Towards the end of October the vintage, which had been delayed during the month by frequent rains, was almost everywhere completed

Provisional and unofficial estimates evaluate the wine yield at rather 90 millions Imperial gallons (110 million American gallons) thus confirming our forecast in September of a yield 25 to 30 per cent. lower than that of last year.

Palestine: Mountain grapes are ripening. Grape berry moth is common and causes some damage. Weather conditions are favourable to slow ripening. The yield is normal, better than that of 1935.

Algeria: The stocks remaining from previous production are still relatively abundant. Stocks declared by viticulturists at the end of the 1935-36 season amount to a total of 91,070,000 (109,370,000) gallons, and this is only a partial estimate as the majority of small vinegrowers is not included. It may be estimated that, inclusive of trade stock, the total available supplies in Algeria at the beginning of the present season amounts to about the average volume (370 [450] million gallons in round figures) of the five-year period 1929-34 prior to the last two vintages which were exceptionally abundant.

French Morocco: The last vintages are completed and confirm the forecast of a small yield. Picking of late table grapes was progressing in October.

Union of South Africa: In Cape Province,' grapes are in excellent condition, and if weather conditions continue to remain favourable many farmers will have record crops.

OLIVES

France: Information is not yet to hand regarding the general condition of the French olive crop. In Corsica the olive fly has caused considerable damage but the crop is average

Greece: To the information given in the September Bulletin regarding the damage to olives in Crete, Corfu and Xanthia, should now be added the exceedingly alarming information received from Thessaly.

According to information received, the olive crop in the Pelion district, which is the principal olive growing region, must be considered as having been almost entirely destroyed by cryptogamic disease.

As a consequence of these pessimistic forecasts the Greek Government has recently passed a decree limiting the export of oil even to those countries with which a system of clearing is in force.

Italy: Production is very small owing to insect infestation

Palestine: Olive picking started in October. Olive fly is reported to cause severe damages in most Districts. The yield is much below normal and that of last year

French Morocco: Olives were already ripe by the end of October in certain districts, being three weeks in advance of normal harvesting has begun on the southern shores. Generally speaking, the crop is likely to be barely average.

FLAX

Argentina: The following details are given in the report of 21 October.

Buenos Aires province. — Development varies with locality but on the whole there is a delay. The recent rains of October appreciably benefited the crop, which was good to excellent

Santa Fé province — Germination was normal save in some parts of the Centre-West where soil moisture was inadequate. After the recent rains prospects were good. In the north invasion by locusts was feared.

Córdoba province. — Crop condition may be summarised as good in central and south east areas. In the northeast development was far from satisfactory.

Entre Rios. — The rains in October caused a strong reaction in favour of crop, that during the winter doubt. Better prospects existed in the west and southeast. In some areas weeds are complained of it. On the whole, however, condition was regarded as good but locusts are feared.

'Santiago del Estero. — Crops had an irregular appearance and were sparse and ill-developed owing to the drought thst prevailed in all the producing districts.

National Territory of the Pampo. — Forecasts indicate a small crop.

(Telegram of 18 November): Crop condition is good in all producing areas. In the north threshing had already begun.

Flax.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Average = 100	1936 — 1936/1937	1935 — 1935/1936	Aver 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Aver 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver = 100
	1,000 acres					1,000 centals			1,000 pounds				
						Fibre.							
Germany 1)	109	55	18	197.9	614.5	657	303	2) 94	65,679	30,330	2) 9,354	216.5	702.1
Austria 3)	4	5	6	94.7	74.1	12	12	17	1,230	1,160	1,708	106.1	72.0
*Belgium	52	47	35	112.6	149.7	...	343	219	...	34,347	21,922	...	...
Bulgaria	6	6	1	108.9	423.1	14	8	3	1,412	786	336	179.6	420.2
Estonia	70	73	51	96.6	137.1	207	231	144	20,675	23,073	14,448	89.6	143.1
*Irish Free State	...	5	2	...	...	...	23	7	...	2,300	689	...	...
*Finland 4)	12	12	10	102.9	123.9	...	39	32	...	3,946	3,236	...	...
France	97	82	44	117.8	223.3	583	479	247	58,263	47,885	24,652	121.7	236.3
*N. Ireland	25	28	13	91.4	188.0	...	154	62	..	15,438	6,156	..	...
Hungary	9	6	5) 8	130.3	102.1	42	21	5) 27	4,239	2,125	5) 2,666	199.5	159.0
*Italy	...	9	10	...	...	...	44	48	...	4,381	4,767	...	...
Latvia	167	168	105	99.6	159.0	398	547	310	39,838	54,697	30,975	72.8	128.6
Lithuania 4)	208	194	146	107.0	142.0	628	703	459	62,766	70,328	45,936	89.2	136.6
Netherlands	36	23	17	153.3	207.7	256	187	114	25,618	18,723	11,365	136.8	225.4
*Poland	330	305	253	108.4	130.5	...	878	712	...	87,811	71,195	...	...
*Romania	71	77	55	91.3	128.2	...	210	129	...	21,007	12,915	...	...
Czechoslovakia	40	33	22	122.0	180.7	197	149	95	19,706	14,923	9,541	132.1	206.5
*Yugoslavia	33	30	30	110.8	111.5	...	222	226	...	22,169	22,604	...	...
Total Europe	*746*	*645*	*418*	*115.8*	*177.1*	*2,994*	*2,640*	*1,510*	*299,426*	*264,030*	*151,670*	*113.3*	*198.2*
*U. S. S. R. 6)	7) 5,072	5,206	5,513	97.4	92.0	...	12,125	11,322	...	1,212,546	1,132,197	...	...
Egypt	6	5	3	124.7	182.8	41	29	21	4,121	2,929	2,083	140.7	197.9
Totals	**752**	**650**	**421**	**115.6**	**177.2**	**3,035**	**9,669**	**1,531**	**303,547**	**266,959**	**153,753**	**113.6**	**198.4**
						Linseed.							
									1,000 bushels of 56 pounds				
Germany	109	55	18	197.8	614.3	715	366	2) 105	1.276	654	2) 187	195.1	682.5
*Austria	...	3	4	...	...	12	12	14	21	22	24	98.2	87.3
*Belgium	52	47	35	112.6	149.7	...	241	174	...	430	311	...	...
Bulgaria	6	6	1	108.9	423.1	42	26	6	75	46	10	163.4	721.5
*Estonia	70	73	51	96.6	137.1	...	207	161	...	369	288	...	...
*France	97	82	44	117.8	223.3	...	340	204	...	607	364	...	..
Hungary	16	24	5) 30	66.6	53.4	124	117	5) 141	221	210	5) 251	105.5	87.8
*Italy	...	10	15	...	...	. .	49	78	. .	88	140	...	...
Latvia	167	168	105	99.6	159.0	355	454	299	633	811	533	78.1	118.8
Lithuania 4)	208	194	146	107.0	142.0	778	833	559	1,389	1,487	999	93.4	139.0
*Netherlands	330	23	17	153.3	207.7	...	153	98	...	273	176	...	...
*Poland	36	305	253	108.4	130.5	...	1,564	1,105	...	2,793	1,974	...	...
Romania	71	77	55	91.3	128.2	299	252	232	534	450	415	118.8	128.7
Czechoslovakia	40	33	22	122.0	180.7	134	126	71	239	225	127	106.2	187.7
Total Europe	*617*	*557*	*377*	*111.1*	*163.4*	*2,447*	*2,174*	*1,413*	*4,367*	*3,883*	*2,522*	*112.6*	*173.2*
*U. S. S. R. 8)	9) 5,800	5,758	6,724	100.7	86.2	...	...	16,708	...	...	29,836	...	...
Canada	468	214	432	218.3	108.2	996	824	1,321	1,779	1,472	2,359	120.9	75.4
United States	1,698	2,014	2,107	84.3	80.6	3,416	7,909	6,440	6,100	14,123	11,501	43.2	53.0
India	3,402	3,410	3,118	99.8	109.1	8,602	9,408	8,714	15,360	16,800	15,560	91.4	98.7
*Turkey	44	24	35	183.5	128.4	...	134	99	...	240	177	...	...
Egypt	6	5	3	124.7	182.8	43	36	25	77	64	44	119.2	173.9
*Eritrea	...	2	10) 4	...	...	...	13	10) 20	...	24	10) 36	...	...
French Moroc.	41	42	52	98.2	78.4	176	136	246	315	243	440	129.6	71.6
*Argentina	11) 7,426	11) 6,573	11) 7,702	113.0	96.4	...	29,322	41,634	...	52,360	74,347	...	...
*Uruguay	...	403	392	...	...	...	1,877	1,979	...	3,552	3,534	...	...
Totals	**6,232**	**6,242**	**6,089**	**99.6**	**102.3**	**15,680**	**20,487**	**18,159**	**27,998**	**36,585**	**32,426**	**76.5**	**86.4**

---

†) *The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern.* — *) Countries not included in the totals. — *1)* The corresponding figures of production in dry stalks (flax and straw, *Rohstengel*) in 1,000 pounds are as follows: 1936 - 328,397, 1935 - 151,652; average - 46,772. — 2) Year 1933 and 1934. — 3) The corresponding figures of production in dry stalks are as follows in 1,000 pounds: 1936 - 6,349, 1935 - 5,798, average 8,539. — 4) Flax and hemp. — 5) Year 1934. — 6) " Dolgunetz " variety. — *7)* Area harvested at 1 September, representing 97 % of the area fixed by the Plan (5,241,000 acres). — 8) Total area (including that for flax). — 9) Total area according to the Plan. — 10) Average 1931 to 1934. — 11) Area sown.

COTTON

Greece: According to information received from the Greek Cotton Institute, crop conditions became even worse during the last half of September and the first half of October. Consequently the first estimate of the crop, after being reduced by 9 per cent on 15 September was again reduced by another 8 per cent on 15 October.

Romania: According to the most recent estimate area cultivated to cotton this year will be about 3,600 acres against 2,300 in 1935 and 1,600 on the average of the five years ending 1934; percentages 159.0 and 222.0.

U. S. S. R.: According to the data published on 15 November by the People's Commissariat for Agriculture, the plan for deliveries of unginned cotton, which had fixed 1,877,520 metric tons for the whole Union, has been entirely realized this year a month prior to the date fixed.

The quantities of cotton picked and delivered so far exceed by 485,000 tons those at the corresponding period last year. The quantities picked and delivered this year are 170,000 tons larger than the total delivered during the past year. Of the quantities delivered 89 per cent is of first quality and 70 per cent of long staple (1 ½ to 1 3/16 inches). In the irrigated areas the average yield is 1070 lb. unginned cotton per acre.

United States (Report for the week ended 20 October): Warm and generally fair weather prevailed except for widespread unneeded rain which again occurred in the Eastern districts. In Central and Western portions of the belt very little or no rain fell. Except in the East weather was generally favourable for picking and ginning and this work was completed in many places and was well along generally. In Texas cotton was practically all out except in the North-West, where a considerable amount remained in the fields. In Oklahoma the harvest was nearing completion, much being snapped and quality poor. In the Mississippi Valley, especially in Central and Eastern

Cotton.

Countries	Area					Production of ginned cotton							
	1936/37	1935/36	Average 1930/31 to 1934/35	% 1936/37		1936/1937	1935/1936	Average 1930/31 to 1934/35	1936/1937	1935/1936	Average 1930/31 to 1934/35	% 1936/37	
				1935/1936 = 100	Average = 100							1935/1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bales of 478 lb.				
Bulgaria	72	89	29	80.8	247 5	137	186	41	29	39	9	74.0	336.1
Greece 1)	2) 176	110	62	159.5	284.6	2) 363	234	115	2) 76	49	24	155.5	317.2
Yugoslavia 1)	5	4	3	136.1	175.4	...	5	2	...	1	1	...	...
U. S. S. R.	3) 4,932	4,827	4,883	102.2	101.0	4) 12,832	11,670	8,480	4) 2,684	2,441	1,774	110.0	151.3
United States 5)	29,720	27,335	34,658	108.7	85.8	59,272	50,852	63,777	12,400	10,638	13,343	116.6	92.9
China	6) 8,357	5,318	5,823	157.1	143 5	6) 21,830	10,853	11,806	6) 4,567	2,270	2,470	201.1	184.9
India 7)	20,989	22,114	19,760	94.9	106.2	—	—	—	—	—	—	—	—
Turkey	625	520	469	120.1	133.2	...	1,151	464	...	241	97	...	...
Egypt	1,781	1,733	1,743	102.8	102.2	6) 9,309	8,454	7,076	6) 1,947	1,769	1,480	110.1	131.6
Nyasaland	—	—	—	—	—	48	78	27	10	16	6	61.7	180.5

1) Area sown. — 2) Unofficial estimate — 3) Area sown up to 15 May, 1936; the area fixed by the Plan amounts to 4,979,000 acres — 4) Production fixed by the Plan. — 5) See *Summary of Government's Cotton Reports.* — 6) First estimate. — 7) Second estimate.

lowlands of Arkansas, there was much cotton in the fields, while rain caused some interruption to picking in Tennessee. In the Eastern belt the additional moisture was unfavourable, causing delay in picking and retarding opening There was more, or less damage by heavy rains locally to open staple. The last few days were more favourable, but sustained sunshine was badly needed in the North-Eastern cotton belt.

(Report for the week ended 27 October) Fair and mostly warm weather has prevailed in the Eastern cotton belt during the past week, but heavy rains occurred in most Northern sections from the Mississippi Valley to the West Temperatures ranged from decidedly below normal in the North-West to above normal in the East. In Texas and Oklahoma picking has been about completed except for gathering in the remnants of the crop. There was practically no ginning in Oklahoma, however, because of wet weather In Mississippi Valley States picking made very good progress in the first part of the week, but thereafter was interrupted by frequent rain and there was some additional damage to staple. In the more eastern States weather was favourable to field work and the harvesting of the remaining crop made excellent progress

(Report for the week ended 3 November)· In Texas and Oklahoma cotton was mostly gathered except for some scattered districts In Arkansas picking made slow progress because of cloudy damp weather In the Eastern Belt weather was mostly favourable for field work and the harvest advanced satisfactorily, being nearly finished as for North as South-Eastern North Carolina

Summary of Government's Cotton Reports, by cotton season

	Provisional estimates for dates indicated 1936/37	Final estimates		Percent 1936/37	
		1935/36	Average 1930 31 to 1934/35	1935/36 = 100	Aver = 100
Report referred to 1 July					
Area in cultivation (acres)	30,621,000	27,888,000	37,408,000	109.8	81.9
Report referred to 1 August					
Area left for harvest (acres)	1) 29,924,000	2) 27,335,000	3) 34,658,000	109.5	86.3
Crop condition (per cent of normal) . . .	72.3	73.6	4) 68.0	—	—
Production 5)	12,481,000	10,638,000	13,343,000	117.3	93.5
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 August 6)	41,130	94,346	85,520	43.6	48.1
Cotton ginned to 16 August 6)	208,327	316,930	345,824	65.7	60.2
Report referred to 1 September					
Area left for harvest (acres)	7) 29,720,000	2) 27,335,000	3) 34,658,000	108.7	85.8
Crop condition (per cent. of normal)	59.1	64.5	4) 58.7	—	—
Production 5)	11,121,000	10,638,000	13,343,000	104.5	83.4
Yield of lint per acre, in lb.	179.2	186.3	4) 178.2	96.2	100.6
Cotton ginned to 1 September 6).	1,373,868	1,135,090	1,221,961	121.0	112.4
Cotton ginned to 16 September 6)	3,707,142	2,315,831	2,941,273	160.1	126.0
Report referred to 1 October					
Crop condition (per cent. of normal) . . .	61.8	64.0	4) 58.1	—	—
Production 5)	11,609,000	10,638,000	13,343,000	109.1	87.0
Yield of lint per acre, in lb.	186.9	186.3	4) 178.2	100.3	104.9
Cotton ginned to 1 October 6)	6,030,940	4,232,068	5,484,000	142.5	110.0
Cotton ginned to 18 October 6)	8,567,676	6,590,402	8,282,604	130.0	103.4
Report referred to 1 November:					
Production 5)	12,400,000	10,638,000	13,343,000	116.6	92.9
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 November 6)	9,880,000	7,743,612	10,101,585	127.6	97.8
Cotton ginned to 14 November 6).	10,765,000	8,436,536	11,317,301	127.6	95.1

1) Area in cultivation on 1 July, less the ten-year, 1926-35, average abandonment, about 2.3 per cent — 2) Area actually harvested; per cent. of abandonment about 2.0. — 3) Area actually harvested, the per cent. of abandonment, about 1.7, does not take into account about 10,405,000 acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts — 4) Ten-year, 1925-34, average. — 5) In bales of 478 lb net weight and exclusive of linters. — 6) In running bales, counting round bales as half-bales and exclusive of linters — 7) Area in cultivation on 1 July, less 2.9 per cent. of abandonment

(Comments relating to the crop report of 1 November): The increase in the prospective out-turn results from fall weather that has been almost ideal for maturing and picking the crop. When average conditions prevail there is usually some loss to open cotton in fields, but this season practically no losses of this kind have occurred. In the Carolinas and generally along the Northern portion of the belt the frosts came later than usual, which permitted the maturing of a large portion of late bolls which were in danger a month ago.

(Report for the week ended 10 November): Nearly all late cotton was open and picking and ginning made good progress during the week in South Carolina. Fair advance was reported in North Carolina where the crop was more than half gathered. Heavy rains in Northern Mississippi have lowered the grade of unpicked cotton in the Northern Delta counties. In Texas picking was completed except for snapping. In Oklahoma there was some snapping but the crop is now nearly all gathered. In Arkansas picking was slow, due to cold and rain.

St. Vincent: According to the most recent estimate area cultivated to Sea Island cotton in 1935-36 was 3,540 acres against 1,464 in 1934-35 and 1,880 on the average of the five seasons ending 1933-34; percentages 242.1 and 188.3. The corresponding production of ginned cotton is estimated at about 3,970 centals (830 bales of 478 lb.) against 1,737 (363) and 2,518 (527); percentages 228.6 and 157.7.

According to a provisional estimate the area under Sea Island this year is about 5,000 acres against 3,540 in 1935-36 and 1,821 on the average of the five seasons ending 1934-35; percentages 141,2 and 274.5

The area cultivated to Marie Galante in 1935-36 was 721 acres against 652 in 1934-35 and 911 on the average of the five years ending 1933-34; percentages 110.6 and 79.1. The corresponding production of ginned cotton is estimated at about 683 centals (143 bales of 478 lb.) against 386 (81) and 628 (131); percentages 177.1 and 108.8.

According to a provisional estimate the area under Marie Galante this year is about 700 acres against 721 in 1935-36 and 820 on the average of the five years ending 1934-35; percentages 96.9 and 85 2.

French Indo-China: In certain districts in Annam (Binh-Thuân) where cotton is in flower, boll formation has been hampered by the September rains.

Egypt: The crop was 15 to 20 days in advance this year and in the majority of provinces only one picking was carried out, generally, very quickly, owing to the simultaneous bursting of the bolls. Toward the middle of October scarcely any cotton remained in the fields. This year's production is the largest ever recorded in Egypt. Unit-yields are on the whole higher than last year and the average and are generally around 530 lb. lint per acre.

Cotton ginned up to the end of October, in bales of 478 lb. net weight:

Varieties	1936	1935	1934	1933	1932	1931	1930
Sakellaridis	32,190	42,140	42,240	30,870	42,920	45,630	71,050
Other varieties above:							
1 3/8"	164,890	108,460	73,440	40,060	29,430	339,710	386,140
1 1/4"	10,170	13,770	13,210	17,620	22,310		
1 1/8"	573,380	507,370	449,750	418,860	203,700		
Total	*780,630*	*671,740*	*578,640*	*507,410*	*298,360*	*385,340*	*457,190*
Scarto	14,030	11,710	10,180	7,470	6,050	8,680	8,690
Total production (including *Scarto*)	*)1,947,400	1,768,600	1,565,600	1,776,900	1,027,000	1,317,300	1,714,900

*) First estimate.

Nigeria: The weather having been favourable for the growing cotton, it was expected in September that the crop would be not less than that of last season.

Nyasaland: It was reported in September that owing to adverse weather conditions it was considered doubtful whether the cotton production would reach the estimate which appears in the general table

Uganda The acreage planted to the end of September was estimated to be 1,412,000 acres as compared with 1,140,000 acres planted to the same date last year. Percentage 123 8

Pests and diseases in September were less evident than usual and the condition of the crop was above average

HEMP

Yugoslavia The rather rainy weather which prevailed in October particularly during the first half of the month, has held up the work of pulling and retting

Hemp

COUNTRIES	AREA 1936	AREA 1935	AREA Average 1930 to 1934	% 1936 1935 = 100	% 1936 Average = 100	PRODUCTION 1936	PRODUCTION 1935	PRODUCTION Average 1930 to 1934	% 1936 1935 = 100	% 1936 Average = 100
	1 000 acres					1 000 pounds				
				Fibre						
Germany 1)	14	9	1	154 8	1 787 3	9 929	8 238	—	120 5	—
Austria 2)	1	1	1	100 0	100 9	278	273	303	101 6	91 6
Bulgaria	15	16	11	92 0	133 7	7 094	7 495	4 173	94 6	170 0
France	9	8	8	111 7	120 6	10 406	8 262	7,342	125 9	141 7
Italy		166	157				142 077	140 905		
Poland	83	84	79	99 5	105 8		26 681	29 215		
Romania	124	115	110	108 7	112 7		50 090	53,240		
Czechoslovakia	18	18	18	100 5	99 5	11 735	12 689	11,259	92 5	104 2
Yugoslavia	131	109	80	120 7	164 9		82 763	62,507		
U S S R . .		1,495	1,961					426 287		
Syria & Lebanon		12	5				7 035	2 630		
				Hempseed						
Germany	14	9	1	154 8	1 787 3	7 604	4 308	—	176 5	—
Austria	3)	3)	3)	100 0	86 2	1	1	1	112 5	80 6
Bulgaria	15	10	11	92 0	133 7	5 587	5 325	3 155	104 9	177 1
France	9	8	8	111 7	120 6		3 476	2,044		
Poland	83	84	79	99 5	105 8		45 070	39,663		
Romania	124	115	110	108 7	112 7		43 030	40,219		
Czechoslovakia	18	18	18	100 5	99 5	7,580	8 509	7,484	89 1	101 3

---

1) Corresponding dates of the production, expressed in terms of air-dried stalks « Rohstengel » are following 1936 — 49,644,000 pounds, 1935 — 41,191,000 pounds — 2) Corresponding dates of the production expressed in terms of aix dried stalks are following 1936 — 1,389,000 pounds 1935 — 1,367 000 pounds average 1930 to 1934 — 1,516,000 pounds — 3) Area less than 500 acres

HOPS

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1936	
				1933 = 100	Average = 100				1935 = 100	Average = 100
	1,000 acres					1,000 pounds				
Germany	25	25	25	99.3	100.3	...	18,941	16,370	...	...
Austria	...	...	1)	...	...	...	...	87	...	...
Belgium	2	2	2	106 8	127.0	...	2,535	2,009	...	...
France	5	5	5	103.7	93.5	3,644	5,098	3,637	71.5	100.2
Hungary	...	1)	1)	...	...	...	154	196	. .	...
Engl. and Wales	18	18	18	100.3	100.6	...	27.810	24,304	...	...
Poland	8	8	2) 6	109.3	144.9	...	3,732	2) 3,050	...	...
Romania	1)	1)	1)	34.1	34.1	...	52	49	...	...
Czechoslovakia	29	29	33	100.6	89.3	27,558	15,432	21,104	187.6	130.6
Yugoslavia	7	7	6	104.2	123 2	...	4,170	3,116	...	...
—										
Canada	...	1	1	...	...	...	1,766	1,214	.	..
United States	31	39	26	79.5	119.2	23,400	47,746	31,506	49.0	74.1

1) Area under 500 acres. — 2) Average 1932 to 1934

TOBACCO

Bulgaria: The production of 77 million pounds estimated in October will only with difficulty be attained in view of the bad weather that prevailed not only during growth and ripening but during harvesting and drying. In addition the resulting diseases caused very considerable damage and average unit-yield was reduced to a level much below that previously expected.

The extension of area this season is due principally to the satisfactory prices obtained for the 1935 crop, which was entirely marketed in a relatively short period. This development of the area has been checked neither by the restrictions, even more vigorously applied, nor by the weather fluctuations, which were unfavourable both to quantity and quality. After the completion of transplanting frequent rains led to undue development, weakening the leaves and hindering the normal gathering and drying of the first crop. The great heat that followed also caused very serious damage to plantings, the leaves then ripening being scorched and unable to attain the desired development. Damage by thrips was not large, this trouble not having found a favourable terrain for development, owing to the rains.

Harvesting was carried out in ideal conditions. Late crops developed in better conditions and the leaves were almost all gathered by the first decade of September. The coming crop, of which the qualitative yield is higher than that of last season, would appear to leave much to be desired, at least qualitatively. Only the production of limited peripheral areas (Nevrocop and some others) is exceptional in being fairly satisfactory.

Cuba: According to information received from the National Commission for Propaganda and Defence in Havana, the tobacco yield in the district of Vuelta-Abajo during 1935-36 reached 43,155 thousand lb. (37,814 thousand lb. in 1934-35). The yield included 41,915 thousand lb. of tripe and 1,241 thousand lb. of cape (36,086

Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1931	
				1935 = 100	Average = 100				1935 = 100	Average = 100
	1,000 acres					1,000 pounds				
*Germany 1)	32	31	27	100.7	117.3	...	76,897	60,305	...	...
*Belgium	7	8	7	85.1	97.7	...	17,078	14,777	...	...
Bulgaria	92	86	67	107.3	136.6	66,838	60,684	53,527	110.1	144.2
Greece	280	198	195	141.3	143.5	147,013	101,550	103,617	144.8	141.9
Hungary	35	38	53	92.9	65.7	46,126	47,269	67,095	97.6	68.7
*Poland	...	13	12	...	...	...	24,260	16,139	...	...
*Rumania	45	44	40	101.6	112.9	...	28,738	24,082	...	...
*Czechoslovakia	24	25	23	98.1	105.1	...	27,806	29,269	...	...
*Yugoslavia	46	31	39	149.6	120.2	...	20,390	26,141	...	...
*U. S. S. R.	...	487	459	...	...	...	...	340,807	...	...
*Canada	...	47	48	...	...	...	54,473	45,150	...	...
United States	1,472	1,437	1,706	102.4	86.3	1,163,000	1,296,810	1,336,559	89.7	87.0
Japan	87	87	86	100.7	101.1	142,353	149,055	146,039	95.5	97.5
*Palestine	...	...	4	...	...	...	...	1,528	...	...
*Syria and Lebanon	...	9	14	...	...	...	4,144	7,707	...	...
Turkey	2) 148	145	127	102.3	116.4	2) 99,208	79,376	82,631	125.0	120.1
*Algeria	49	57	54	85.6	89.4	...	41,648	40,395	...	...
TOTALS	**2,114**	**1,991**	**2,234**	**106.1**	**94.5**	**1,664,538**	**1,734,744**	**1,789,468**	**96.0**	**93.0**

* Countries not including in the totals — 1) Production for sale — 2) Unofficial data

thousand lb. and 1,728 thousand lb respectively in 1934-35). The area of land devoted to Vuelta-Abajo was about 44,000 acres (41,000 acres in 1934-35). The Semi-Vuelta crop reached 5,667 lb. in 1935-36 (3,992 thousand lb in 1934-35) and the area covered as 6,800 acres was against 7,900 acres in 1934-35.

United States: In the week ending 5 November tobacco stripping was begun in Kentucky and Tennessee.

French Indo-China: The crop was good in Cochinchina, where planting has commenced for the first early crop in the high lands Field work is progressing actively in Annam

OTHER PRODUCTS

Cacao.

Brazil: According to the Instituto de Cacao of Bahia the present crops in that State will be 10 per cent smaller than last year's and thus in the neighbourhood of 238 million lb. Shipments up to 15 October were 139 million against 110 million up to the same date in 1935.

Gold Coast and British Togoland: 1935-36 crop. — According to final estimates last season's crop amounted to 622.7 million lb., of which major crop 589.1 and minor crop 33.6.

The above figures are arrived at as follows:

Exports October 1935-August 1936:

Ports	million lb.	607.1
Frontier	» »	17.9
+ stocks 1 September 1936	» »	69.4
= Total exports and stocks up to 1 September 1936	million lb.	694.4
— Carryover of old crop 1 October 1935	» »	65.0
— New 1936-37 major crop marketed 1 September 1936	» »	6.7
= Crop year production	million lb.	622.7
— Minor crop 1936	» »	33.6
= Major crop 1935-36	million lb.	589.1

1936-37: Major crop. — Normal weather was experienced in September. It was rather wetter in Ashanti than in the Colony and considerable difficulty with drying was reported. September conditions in Ashanti were ideal for growth, and in localized areas flowers were plentiful. In the Colony conditions were moderate both for drying and growth, flowering being reported in the Kwahu and Krobo districts of the Eastern Province. and in the Winneba district of the Central Province. Local flowering was also reported from Nsawam-Kibi and in the Trans-Volta area.

The latest estimates from the districts gave the following provincial totals as compared with those of last season (in million lb):

	1936-37	1935-36
Ashanti	179.2	194.9
Western Province	26.9	26.9
Central Province	94.9	112.0
Eastern Province	201.6	221.7
Trans-Volta	35.8	33.6
Total	537.6	589.0

The improvement in growth conditions was expected to result in better development and larger pods than seemed likely before the dry spell was broken, but this fact had been taken into consideration in the estimates given above. Any change in the estimates is more likely to be in a downward than in an upward direction. The dry spell caused losses of flowers and young pods but even in a normal season a tree produces far more young pods than reach maturity and a pod cannot be considered definitely set for fruit until it is about 3 ½ inches long, representing about 3 ½ months growth. The yield this season for trees carrying fewer small pods is dependent therefore on a higher percentage reaching maturity. Observation has so far confirmed this and there was a marked absence of dead pods in most farms. It was reported that the present flowering would not affect the major crop as pods which may materialise from these flowers will not be ripe until the latter half of March, and it is possible that a picking will be available between the end of this major crop and next minor crop.

The percentage ripe in the different provinces was estimated as follows:

	% of whole crop ripe at end September	Estimated % ripe by end October
Ashanti	30	50
Western Province	26	47
Central Province	23	51
Eastern Province	22	41
Trans-Volta	20	35
Weighted average	25	46

About 78.4 million lb. had already been harvested, of which 38.1 already marketed and 40.3 in farmers' hands. The state of the crop was therefore roughly as follows:

Harvested	78.4	million lb.
Ripe on the trees at end September	56.0	» »
Expected to ripen in October	112.0	» »
Maturing after October	291.2	» »
Total crop	537.6	» »

Quality. — The mean purity of the beans in September was 86.0 per cent. The average size was 122.9 per 14 cubic inches, or 99.3 per 4 ounces, while measured in millimetres it was 22.8 × 12.3 × 6.9.

Movement. — Crop movement in September, 1936, and during the crop year 1935-36, compared with 1934-35, was as follows:

	Sept. 1936	Oct. 1935 to Sept. 1936 million pounds	Oct 1934 to Sept. 1935
Railway off-loadings, Takoradi	13.2	215.3	208.1
Exports:			
Takoradi	12.5	215.4	187.2
Accra	15.2	285.1	238.0
Other ports	4.1	138.9	116.0
All ports	31.8	639.4	541.2
Eastern Frontier	0.1	17.9	19.9
Total exports	31.9	657.3	561.1

Gate cheks. — This season gate checks are being operated in the Central and Western Provinces. During the second half of September 1,216,000 lb. of cacao entered Agona Swedru, 314,000 lb. entered Cape Coast and 278,000 lb. entered Saltpond. Checks at Dunkwa and Inser siding were opened at the beginning of October.

Nigeria: It was reported in September that in some areas in the south the main cacao season had begun about a month earlier than usual.

Tea.

French Indo-China: In Tonkin pickings were average in September on pruned plantings, light on unpruned. In the same month the crop was abundant in Annam, where seed ripening commenced in certain districts.

Iran: According to information received from Gilan, picking was in progress towards the end of October and the yield will be satisfactory this year.

Coffee.

Brazil: According to the Departamento Nacional do Café, Rio de Janeiro, exports in the season ended 30 June were 2,060,000 thousand lb., an increase of about 287,000 on that of the preceding year against 2,097,000 in 1933-34, 1,607,000 in 1932-33; 2,021,000 in 1931-32 and 2,318,000 thousand lb. in 1930-31. Exports in the first four months (1 July-31 October) were estimated at 587,000 thousand lb., a decrease of 147,000 on the corresponding figure of last year. The total destroyed from 1931 to the end of October 1936 amounts to 5,158,000 thousand lb., of which 318,000 were destroyed in the first four months of the current season. Nevertheless internal stocks at the end of the last season were appreciably larger than those on 30 June 1935, as may be seen from the following table, showing the volume of stocks on 30 June 1936, 1935 and 1934.

Stocks of coffee in Brazil on 30 June

	1936	(million lb.) 1935	1934
Stocks belonging to D. N. C.	1,297	1,404	1,536
Free stocks belonging to D. N. C	388	154	614
Stocks in private hands	1,055	632	312
Totals . . .	2,740	2,189	2,462

The exportable product of 1936-37 according to the D. N. C., for the period 1 July 1936 to 31 March 1937 amount to 2,845,000 thousand lb., distributed as follows among the producing of States:

São Paulo	1,759,000
Minas Geraes	608,000
Espirito Santo	232,000
Rio de Janeiro	126,000
Paraná	41,000
Baía	40,000
Pernambuco	31,000
Goiás	9,000
Total . . .	2,845,000

Colombia: According to information communicated by the Federación Nacional de Cafeteros de Colombia exports of coffee from Colombia during the last trade season ending on 30 June was the highest registered up to the present, exceeding 47,400 thousand lbs., the record reached in the 1933-34 season.

In the following table we publish the export figures for the season 1935-36 compared with those of the five preceding seasons:

	(July 1-June 30) 1935-36	1934-35	1933-34	1932-33 (in thousand lb.)	1931-32	1930-31
United States . .	368,835	330,694	371,701	390,881	353,843	362,441
Europe	123,018	74,737	79,808	46,738	41,668	29,763
Other countries .	13,669	8,157	6,614	5,291	3,307	4,409
Totals . . .	505,522	413,588	458,123	442,910	398,818	396,613

The increase in exports of Colombian coffee during the 1935-36 season as compared to the five preceding seasons is due particularly to the increasing demand from European and extra-European countries, while the volume of exports to the United States, though exceeding by 38,140 thousand lb. that of the preceding season, remained at a normal level. Among European importing countries the greatest increase is to be noted in Germany, which, as a result of the trade agreement between the two countries absorbs 4/5 of the total European imports.

The accelerated rhythm of exports from Colombia already noted during the past season has continued during the first months of the new trade year. In fact, exports in September reached a total of 39,904 thousand lb., as against 37,920 in the corresponding month in 1935 and the total exports during the first quarter of the present season (July-September) brought the figures to 130,735 thousand lb. as against 129,412 thousand lb. in the corresponding period of last year.

Costa Rica: Exports from 1 October 1935 to 15 July 1936 attained 40.5 million pounds against 46.5 million in the corresponding period of last season. The reduction is due to the small crop of 1935-36. For 1936-37 a crop round about 52.3 million pounds is expected.

Ecuador: The 1936-37 crop is considered fairly satisfactory. Export in the July-October quarter was fairly active.

Guatemala: Exports from the opening of the commercial season to the end of August attained 116,845,000 lb. against 79,367,000 in the corresponding period of 1934-35. According to an official source the 1936-37 crop amounted to 147,710,000 lb, which is distinctly larger than in preceding seasons.

Haiti: Exports in July amounted to 2,954,000 lb. against 992,000 in July 1935. Total exports for the first ten months of 1935-36 were 75,178,000 lb. against 39,463,000 in the corresponding period of 1934-35. For 1936-37 a normal crop is expected.

Nicaragua: The excessive rain in the principal areas of production damaged the new crop, which seems below normal.

Dominican Republic: Exports in the first half of 1936 were very high, amounting to 20,724,000 lb. against 9,021,000 in the corresponding period of last year. Prospects for the new crop are average to good.

El Salvador: Exports from November 1935 to the end of June 1936 amounted to 93,256,000 lb. against 100,090,000 in the same period of 1934-35. Prospects for the new crop are good.

French Indo-China: Picking was completed in Tonkin at the beginning of September. Fruit formation was in progress in Annam and was average in the north.

Tanganyika: In September rain hindered coffee picking in the Moshi and Arusha districts.

Groundnuts.

United States: According to the most recent estimate area cultivated to groundnuts this year is about 1,744,000 acres against 1,642,000 in 1935 and 1,415,000 on the average of the five years ending 1934; percentages 106.2 and 123.3. The corresponding production is estimated at about 1,312 million lb. against 1,264 million and 970; percentages 103.8 and 135.2.

French Indo-China: Crop condition was good in Annam at the end of September.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the groundnuts area:—

	1936 acres	1935 acres
Area harvested in September	50,400	51,400
Area harvested from 1 January-30 September .	395,100	361,000
Area of standing crop at the end of September.	168,000	128,000

Egypt: Harvesting of groundnuts is active in the early and general cultivations. Maturation of the grains is progressing in the late cultivations. The yield is considered 10 per cent. above the average.

Nigeria: The groundnut season opened on October and, weather conditions having been favourable, good yields were expected.

Jute.

French Indo-China: The yield in certain districts of Tonkin is average (890-980 lbs per acre at Thai-binh).

Colza and sesame.

Germany: According to the recent estimate area cultivated to colza this year is about 102,200 acres against 82,900 in 1935, percentage 123.4. The corresponding production is estimated at about 1,779,000 centals (3,558,000 bushels) against 1,334,000 (2,672,000); percentage 133.2.

Hungary: At the beginning of November sowings of winter colza had sprouted and were growing well.

Poland: On 15 October condition of winter colza was 3.4 against 3.7 at the corresponding date last year.

Romania: According to the most recent estimate production of colza this year about 1,111,000 centals (2,222,000 short tons) against 1,099,000 (2,197,000) in 1935 and 617,000 (1,233,000) on the average of the five years ending 1934; percentages 101.1 and 180.2.

French Indo-China: Crops harvested during September in Annam and in Tonkin gave average yields; uncut crops were in a satisfactory condition at the end of September.

Japan: According to the most recent estimate production of colza this year is about 2,671,000 centals (5.342.000 bushels) against 2,676.000 (5,352,000) in 1935 and 1,951,000 (3,901,000) on the average of the five years ending 1934; percentages 99.8 and 136.9.

Palestine: The sesame yield is very much below the normal, due to failure of spring rains. The decrease as compared with 1935 is one of about 60 per cent.

Turkey: According to the most recent estimate the area cultivated to sesame this year is about 174,000 acres against 164,000 in 1935 and 103,000 on the average of the five years ending 1934; percentages 105.9 and 168.6.

THE WORLD SILK SITUATION

I. — WORLD PRODUCTION OF COCOONS IN 1936.

On the basis of the official data in the following table, unofficial estimates and other information received by the Institute, the following is a summary of the results of the 1936 sericultural season.

In Japan the serious storm damage to the mulberry trees last winter aroused fears of a scarcity of leaves and led silkworm-rearers to limit rearings; the number of eggs placed in incubation, whether for spring or for autumn rearings, was thus less than last year. The opening of the season for the first rearings was favourable but rains and fall in temperature in June were disturbing factors. The progress of second rearings was on the whole normal save in districts where excessive temperatures, low precipitation and disease compelled the rearers to destroy part of the rearings. The total of eggs placed in incubation this year was 3.9 per cent. less than in 1935 and 14.8 per cent. less than the 1930-34 average; the production of cocoons was 2.9 per cent. less than last year and 17.2 per cent. less than the average. Yields were slightly larger than last year but considerably below the average; an average of 129 pounds of cocoons was obtained for every ounce of eggs placed in incubation while in 1935 the figure was 127 ounces and on the average of 1930-34 was 132 ounces.

Production of Fresh Cocoons.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1936	
				1935 % 100	Average = 100				1935 = 100	Average = 100
	1,000 ounces					1,000 pounds				
Bulgaria	28	24	30	117.0	95.5	3,233	3,053	3,276	105.9	98.7
France	13	13	21	101.6	61.4	1,468	1,448	2,526	101.4	58.1
Chosen s)	208	208	223	100.2	93.4	32,812	32,401	30,274	101.3	108.4
Chosen t)	143	138	125	103.6	114.6	16,382	14,598	13,588	112.2	120.6
Japan s)	2,298	2,448	2,795	93.9	82.2	342,207	365,215	419,273	93.7	81.6
Japan t)	2,826	2,883	3,220	98.0	87.8	316,534	313,255	376,677	101.0	84.0
TOTALS	**5,516**	**5,714**	**6,414**	**96,5**	**86,1**	**712,636**	**729,970**	**845,614**	**97.6**	**84.3**

s) Spring cocoons. — t) Summer-autumn cocoons.

For Italy official data of the eggs used and cocoons produced are lacking but it is known that the season has been on the whole good with very little disease; the total of eggs placed in incubation was 60-70 per cent. larger than last year and production of cocoons certainly exceeded the very low production of 1935 (38.4 million pounds); this does not exclude the possibility that it will approach the 1930-34 average of over 77 million pounds of fresh cocoons. It is now estimated that at the end of October sales of collectively stored cocoons to the industry amounted to 48,215,300 pounds. The measures taken toward the end of February for the 1936 season certainly contributed to this result. Amongst the most important are the fixing of a basic minimum price and of export prices for silk products during the 1936-37 season.

As regards China complete data for the results of the season are missing; unofficial information leads to expectations of a considerable increase in production of cocoons, especially of the first crop. The not always favourable weather, with persistent spring rains, did not on the whole lower production, which is estimated to be much above that of last year. The hope of a considerable increase in the prices of cocoons stimulated an extension in the cultivation of mulberries and the development of silkworm-rearing in 1936.

In the Soviet Union the season was particularly favourable in all the leading sericultural areas and yields were fairly high. For 1936 the official plans for deliveries — as is known the cocoons are almost entirely taken over by the Government for the internal silk industry, — were fixed at 46,915,000 pounds against 40,510,000 in 1935. At the middle of August, when deliveries were practically at an end there had been acquired by the various organizations 46,112,000 pounds against 40,422,000 pounds in the previous year. Special efforts have been made this year to increase the production of cocoons by improving the technique of rearings and for the first time there was introduced in the principal areas of production the system of nocturnal feeding of the silkworms and special shelving for the rearings was also adopted

In Chosen the production of spring cocoons is estimated to be slightly below 33,100,000 pounds, that is, not very different from that of 1935, which was 32,410,000 million; summer-autumn rearings, which give on the average a production about half that of spring rearings, had a fairly favourable season, with normal yields, save for some local damage

The total of eggs placed in incubation this year was 1.5 per cent more than in 1935 and 1.0 per cent more than the 1930-34 average, the production of cocoons was 4.7 per cent more than last year and 12.2 per cent more than the average. Yields for 1936 were 140 pounds of cocoons per ounce of eggs against 136 in 1935 and 126 during the period 1930-34.

The situation in the countries of minor importance as silk producers was as follows. In Bulgaria the season was favourable up to the end of May; subsequent harmful fluctuations in temperature, with frosts, especially in the extensive northern districts, damaged the leaves; in the southern districts the situation is better and for the country as a whole yields, though below those of 1935, are above the average, being 113 pounds of fresh cocoons per ounce of eggs against 125 in 1935 and 110 on the average for 1930-34. In France, though the leaves suffered somewhat from the cold and rearings were rather backward, it may be said that in general the weather has been favourable; the crop is of good quality and yields normal. According to the provisional data published at the end of October by the French Ministry of Agriculture, the number of rearers, which declined greatly in recent years, the quantity of eggs used and that of cocoons produced are all larger than last year, though much below the average. In Greece rust damaged the mulberry trees and appears to have entirely destroyed their leafage this year; the Agricultural Bank has arranged the distribution of leaves imported from Turkey and Yugoslavia but as the trouble arose at a critical period, the crop was seriously compromised, especially in Thrace and Central Macedonia. From Spain it is learnt that in Levante, including the most important cocoon producing provinces of Murcia (alone responsible for over half the total), Alicante and Valencia, temperatures were very favourable for rearings and the crop was very large and of excellent quality; in the other areas, of minor importance (eastern Andalucía, La Mancha, etc.) rearings underwent severe damage from cold and rains Altogether it is estimated that yields are considerably higher, by about 20 %, than the 1930-34 average, which was 86 pounds of cocoons per ounce of eggs. In Romania the season was almost everywhere favourable and cocoons had sufficient food. Czechoslovakia had this year a production over double that of 1935 but 42.5 % below the 1930-34 average of 36,400 pounds.

As regards the East, apart from the countries already mentioned, it is known that in Syria and Lebanon the weather was on the whole favourable at the beginning of the season but that subsequently rearings suffered some damage. The decline in silkworm-rearing in this country is considerable owing to the tendency to substitute other and more profitable crops for mulberry. Eggs placed in incubation in 1936 amounted to only half the average for 1930-34 while production of cocoons, estimated at 1,578,500 pounds was hardly one-third of the average. In Iran the season was satisfactory both in Gilan and in other centres. In Turkey the season was at first cold but the leaves subsequently developed luxuriantly and production was estimated at about 4,400,000 pounds, almost equivalent to that of last year but appreciably above the average.

The information available on the colonies and protectorates of French Indo-China has too many gaps to allow even an approximate calculation of the volume of the crop. It is known, however, that in Annam leafage has been abundant and that rearings have been very successful, in Tonkin, on the other hand, floods caused serious damage to the mulberries though in the area not so affected growth at the end of August was satisfactory.

In Brazil vegetation in São Paulo, whence the greater part of the country's production is derived, is excellent and forecasts for the 1936-37 season just begun are favourable.

Summarizing, the 1936 season appears generally favourable in Europe save in Greece and, thanks to the market revival in Italy, total European production of fresh cocoons will this year be considerably larger than in 1935, being estimated, in fact, at about 80.5 million pounds, 55 per cent. above that of the preceding year, but 18 per cent. below the 1930-34 average of 98.1 million; the decline of rearing in Europe has been very great in recent years, especially from 1931 onward previously European production of fresh cocoons oscillated on the average around 132 million pounds. In Asiatic countries the weather was in some cases unfavourable but results were on the whole fairly good and not very different from those of last year; for the total of these countries, excluding China and India, production of fresh cocoons is estimated this year at 761.0 million pounds against 779.3 million in 1935 (2.3 per cent. less) and 895.1 million the average of 1930-34 (15.0 per cent. less), these years including two or three of very large production; in this connection it may be noted that Japanese production alone amounted to about 882 million pounds of fresh cocoons in 1930 and 838 million in 1933 against 758 million on the average of the five years 1925-29.

Very favourable weather has contributed to the recent rapid development of silkworm-rearing in Brazil; the production of this country is still, however, of small importance in the world total. There is also a very notable increase in the Soviet Union (Central Asia and Transcaucasia) to meet the growing requirements of the internal silk industry; from an average of 25.6 million pounds of fresh cocoons in 1926-29, production rose to 34.6 million in 1930-34 and about 46.3 million this year.

In the few African countries rearing silkworms to a very limited extent (Egypt, Tripolitania) weather during the season was in general unfavourable and results poor.

World production of fresh cocoons, not including China and India, is estimated this year at 889.1 million pounds, against 872.8 million in 1935, 1,028.9 million in 1930-34 and 991.6 million in 1925-29. On the basis of present cocoon production and with a necessarily approximate calculation, world production of raw silk in 1936, excluding China and India, may be estimated at 84 million pounds.

As a matter of near interest the data of world production and consumption of artificial textile fibres (rayon, short fibres) may be given. According to trustworthy sources 1,058.2 million pounds of artificial textile fibres were produced in 1935 against 595.2 million on the average in 1930-34; European countries account for over 50 per cent. of this total while, amongst extra-European countries where the manufacture of such fibres is carried on, Japan and the United States produce almost the entire remainder. World consumption of artificial textile fibres is estimated for 1935 at 1,036.2 million pounds against an average of 551.2 million in 1930-34.

II. — TRADE, PRICES AND STOCKS OF RAW SILK DURING THE SEASON 1935-36.

Only a relatively small quantity of cocoons ever finds its way into world trade as the most important producing countries spin the raw silk from the cocoons and it is therefore this product which forms the object of important international trade operations, especially between Asiatic countries and the United States of America. This latter in fact is by far the most important importing country, its annual requirements of raw silk amounting normally to more than 80 per cent. of the total Japanese production.

During the year 1935-36 average monthly imports of raw silk to the United States amounted to 5,044,200 pounds, as against 5,199,400 in 1934-35 and 5,236,800 in 1933-34, being therefore less by 1.5 per cent and 3.7 per cent respectively

Imports, consumption, stocks and prices of Raw silk in New York, by commercial season

SEASON	Imports		Deliveries to Mills		Stocks at the end of the period		Prices in New York Crack XX (78 %) 13 15 Spot	
	Total	Of which from Japan	Total	Of which Japanese silk	Total	Of which Japanese silk	in dollars per lb	in gold francs per kilogr
	(lbs)	%	(lbs)	%	(lbs)	%		
1933-34								
July September	21 315,686	88	15 954 246	90	9 924 803	87	2 03	16 41
October December	15,235 316	95	12,143 984	95	13 016 136	90	1 54	11 26
January March	12 114,883	97	16,681 774	97	8 449 244	86	1 50	10 46
April June	14 177,314	98	14 685 481	97	7 941 077	87	1 28	9 71
Total and Average	*62 843 199*	*94*	*59 465 485*	*95*	—		*1 58*	*11 71*
1934-35								
July September	15 931 318	98	13 564 868	95	10 307 527	93	1 17	7 91
October December	15 718 791	98	17 159 297	97	8 867 022	94	1 30	8 85
January March	14 009 101	97	17 956 491	97	4 919 632	93	1 43	9 72
April June	15 772 143	98	15 041 309	98	5 650 467	94	1 40	9 55
Total and Average	*61 431 353*	*98*	*63 721 965*	*97*	—		*1 33*	*9 00*
1935-36								
July September	17 173 406	96	17 622 049	96	5 201 824	92	1 72	11 62
October December	18 393 228	89	16,206 235	92	7 388 817	86	2 15	14 63
January March	14 227 580	92	14 396 013	92	7 220 384	86	1 86	12 51
April June	10 933 021	93	13 191 183	93	4 762 221	83	1 64	11 15
Total and Average	*60 527 235*	*93*	*61 415 480*	*94*	—	—	*1 84*	*12 48*

than during the previous two years These imports touched a minimum in the four months from March to June 1936, during which they fell to a monthly average of about 3,527,400 pounds The average monthly deliveries to the mills for consumption were 5,118,000 pounds in 1935-36, against 5 310 000 in 1934-1935 and 4,955,000 in 1933-34 Since imports in 1935-36 were less than deliveries, a decrease took place in stocks which at the end of June 1935 amounted to 5,650,500 pounds while by the end of June 1936 they had decreased to 4,762,200 pounds The American silk market during the year 1935-36 was characterized by a definite rise in prices from July to October and by a constant tendency to a fall in prices throughout the remaining eight months of the year, from July to October, as a result of the increasing demand considerably in excess of the period immediately preceding these months, prices rose progressively until in October they reached an average of 2 23 dollars per pound, i e almost the level of prices in July 1933; from November to June, on the other hand, prices fell regularly in line with these in the country of origin and also on account of a considerable decrease in consumption, touching a minimum in June of 1 58 dollars per pound Taking the year as a whole dollar prices were on the average 38 3 per cent. higher than those in 1934-35 and 16 5 per cent. higher than those of 1933-34

The close connection which exists between the North American and the Japanese silk markets is confirmed by the curve of the prices on the respective markets, and in 1935-36 this curve follows an almost identical course. In Yokohama in fact, as well as in New York, starting from the July 1935 level, which was the minimum for the year, prices rose radiply to a maximum in October (with a difference in four months of more than 291 yen) to decrease with more or less marked fluctuations during the remaining months of the year: the considerable rise which took place in August, September and October had its origin not only in the forecast of a poor autumn crop, as the weather was most unfavourable to silk-worm rearing, but also in the estimates of a greater demand from the United States Later, as has been said, the market, except for a slight reaction in February and March, had a tendency to fall until June 1936 As a general rule, prices in yen during 1935-36 were on an average 40.9 per cent. higher than in 1934-35 and 23 6 per cent higher than in 1933-34 Average monthly exports of raw silk from Yokohama and Kobe amounted in 1935-36 to 5,297,000 pounds, as against 5,746,000 in 1934-35 and 5,504,000 in 1933-34, with a respective decrease of 7 8 per cent and 3 8 per cent, mi-

Exports of Raw silk from Japan and prices in Yokohama, by commercial season.

SEASON		Exports			Prices in Yokohama Quality D grade 13 15 White (basis for Open Contracts)	
		To America (lbs)	To other Countries 1) (lbs)	Total (lbs)	in yens per 100 kin	in gold francs per kilogr
1933-34:						
July September		19 417 191	998 962	20 416,153	860 00	14 53
October December		11 595 340	2 829 951	14 425,291	608 30	9 95
January March		13 372,624	2 335 232	15,707 856	590 00	9 39
April June		13 340 348	2 163,007	15 503,355	507 10	7 87
	Total and Average	*57 725,503*	*8 327 152*	*66,052,655*	*641 35*	*10 44*
1934-35:						
July September		16,385 251	2 360 630	18,745,881	473 35	7 21
October December		14 099 755	2,440 393	16,540,148	563 75	6 41
January March		14 037,452	2,639,339	16,676,791	607,10	8 89
April June		13 902,397	3 081,147	16,983,544	606 25	8 91
	Total and Average	*58 424,855*	*10 521 509*	*68,946 364*	*562 60*	*8 37*
1935-36:						
July September		18,539,924	2,297,533	20,837,457	767 50	11 44
October December		15,055,595	2,815 665	17,871,260	905,40	13 39
January March		11,201,549	2,332 454	13,534,003	787 90	11 64
April June		9,283,256	2 039,856	11 323 112	711 70	10 67
	Total and Average	*54,080,324*	*9,485,508*	*63,565,832*	*793 12*	*11.79*

1) For the most part in European countries the remainder in Australia, India and Egypt

nimum exports were registered during the last months of the season with an average considerably below 4,410,000 pounds per month.

During the year under review, the Chinese silk market was very active, exporting considerably more than during the two preceding years: these favourable results are due to important shipments from Shanghai in 1935-36, amounting to about twice and a half the total shipments for 1934-35 and once and a half those of 1933-34; exports from Canton were, however, slightly less than those of the preceding years. Prices were very much the same as those of the principal markets. On the Chinese markets also prices rose rapidly during the first four months of the season (being favourably influenced moreover by the fall in exchange) declining again gradually with more or less noteworthy fluctuations till the end of the season.

Exports of Raw silk from China and prices in Canton, by commercial season.

SEASON	Exports				Prices in Canton - N. S. Crack R. R. 14 16 (c. i. f. delivery New York)	
	To America	To Europe	To other countries	Total	in dollars of U. S. per lb	in gold francs per kilogr
	(lb.)	(lb.)	(lb.)	(lb.)		
1933-34:						
July-September	1,241,189	955,872	903,590	3,100,651	1.39	11.23
October-December	234,445	660,410	1,254,794	2,149,649	1.22	8.91
January-March	189,911	349,507	613,626	1,153,044	1.14	7.94
April-June	959,508	859,795	582,734	2,402,037	0.94	6.37
Total and Average	*2,625,053*	*2,825,584*	*3,354,744*	*8,805,381*	*1.17*	*8.61*
1934-35:						
July-September	195,531	436,929	1,335,990	1,968,450	0.97	6.54
October-December	390,422	890,803	625,837	1,907,062	1.07	7.29
January-March	260,367	373,705	239,463	873,535	1.21	8.26
April-June	295,442	462,650	760,051	1,518,143	1.27	8.68
Total and Average	*1,141,762*	*2,164,087*	*2,961,341*	*6,267,190*	*1.13*	*7.69*
1935-36:						
July-September	1,526,252	1,303,271	827,058	3,656,581	1.33	9.01
October-December	1,549,044	1,369,679	905,561	3,824,284	1.42	9.68
January-March	347,657	345,115	310,035	1,002,807	1.25	8.57
April-June	226,460	503,392	499,686	1,229,538	1.20	8.12
Total and Average	*3,649,413*	*3,521,457*	*2,542,340*	*9,713,210*	*1.30*	*8.84*

As regards Italy no data are available for raw silk after October 1935. During the quarter July-September, 1935 exports of raw silk totalled 754,000 pounds, as against 1,128,300 for the same period in 1934 (1934-35: 4,984,700 pounds) and 1,870,800 pounds during the corresponding period in 1933 (1933-34: 4,822,000 pounds). The greater portion of Italian raw silk is absorbed by European countries (75 per cent in 1934-35) and the rest is purchased in more or less equal parts by Brazil, the United States and a group of other extra-European countries. During the quarter July-September 1935, Italy imported 125,000 pounds of raw silk (75 per cent of which came from Japan and China) as against 36,800 (1934-35: 230,400 pounds) and 141,100 (1933-34: 1,168,000 pounds) in the corresponding periods of the two preceding years. Prices of raw silk on the Italian market in 1935-36 were on an average 65.77 lire per kilo, as against 33.51 in 1934-35 and 39.10 in 1933-34, this jump in prices during the season under review is to be found principally in the exceptional economic situation in that country resulting from the application of sanctions.

At the end of the 1935-36 season total visible stocks of raw silk were estimated at about 17 640.000 pounds, as against 22,100,000 on June 30th, 1935 and 28,660,000 on the same date in 1934 These figures do not include stocks in the possession of the Japanese Government, which on 30 June 1936 amounted to 7,937,000 pounds, as against 10,582,000 on June 30th, 1935 and 12,345,900 on the same date in 1934. The constant decrease in the stocks of raw silk on the principal markets during the last three years might constitute during the present season one of the factors in favour of a rise in the price of this product in the more important importing and exporting countries, the more so as the world production of raw silk in 1936 is expected to be somewhat deficient and very probably lower than the average for the last ten years.

M. COSTA.

FODDER CROPS

Germany: The condition of the clover crop and pastureland was quoted respectively as 2.6 and 2.9 on November 1, 1936 compared with 2.4 and 2.6 on October 1, 1936 and 2.6 and 3.0 on November 1, 1935.

According to the recent estimate the area cultivated to maize for fodder this year is about 146,000 acres against 139,000 in 1935 and 88,000 on the average of the five years ending 1934; percentages 105.2 and 165.8.

Estonia: Thanks to the favourable weather conditions the animals are still out at pasture.

Irish Free State: Supplies of fodder at the beginning of November were adequate for all normal requirements. Yields of fodder crops have been up to average for the time of year.

France: Generally speaking, the cold which prevailed during the first three weeks of October hampered the growth of grass in the meadows and the frosts at the beginning of the month destroyed a part of the fodder corn crop in several of the mountainous districts; growth was uninterrupted in the southern districts only and the October crop was considerable.

Generally speaking, the year's fodder yield has been very abundant, but the quality is very unequal, haymaking conditions having been unfavourable. Only in exceptional cases has it been necessary to have recourse to dry hay for feeding the animals.

The following are the preliminary figures of areas and production of several fodder crops and meadows.

	1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
Area (thousand acres).					
Annual fodder crops:—					
Mangels	2,137	2,174	2,085	98.3	102.5
Turnips and swedes for fodder	427	507	538	84.4	79.5
Temporary meadows for hay:—					
Leguminous	7,372	7,365	7,234	100 1	101.9
Permanent meadows for hay	13,287	13,767	13,561	96.5	98.0
Production. (Thousand centals).					
Annual fodder crops:—					
Mangels	688,221	687,684	661,686	100.1	104 0
Turnips and swedes for fodder	77,195	83,804	90,829	92.1	85.0
Temporary meadows (*hay*):—					
Leguminous	312,333	243,890	259,483	128.1	120.4
Permanent meadows (*hay*)	392,798	373,026	413,561	105.3	95.0
(Thousand short tons).					
Annual fodder crops:—					
Mangels	34,411	34,384	33,084	100.1	104.0
Turnips and swedes for fodder	3,860	4,190	4,541	92.1	85.0
Temporary meadows (*hay*):—					
Leguminous	15,616	12,194	12,974	128.1	120.4
Permanent meadow (*hay*)	19,640	18,651	20,678	105.3	95.0

Great Britain and Northern Ireland: England and Wales rainfall in October was generally below average but sunshine was approximately normal. On the whole conditions favoured growth of root crops and pastures; farm work was generally favoured and there was no interference with autumn cultivation or the lifting of root crops. Grass continued to grow well during October and at the end of the month it was plentiful. An average crop of mangels seemed likely and turnips and swedes were reported to be good crops.

In England and Wales winter keep had not been drawn upon to any appreciable extent and this somewhat improved the general outlook, though good quality hay and straw was expected to be scarce. In Scotland pasture was still plentiful in several districts and prospects for winter feed were fairly good; wheat milling offals were rather scarce but all other feeds appeared to be in sufficient supply.

According to the most recent estimate production of turnips and swedes in England and Wales this year is about 119,482,000 centals (5,974,000 short tons) against 102,816,000 (5,141,000) in 1935 and 111,597,000 (5,580,000) on the average of the five years ending 1934; percentages 116.2 and 107.1, that of mangels is about 102,323,000 centals (5,116,000 short tons) against 102,278,000 (5,114,000) in 1935 and 103,811,000 (5,191,000) on the average of the five years ending 1934; percentages 100.0 and 98.6.

Hungary: The roots of fodder beets are of average size. The yield is generally somewhat above the average. The yield of clover and alfalfa seeds is satisfactory Meadows (after the hay had been mown) and the pastures still offer good bite for the animals.

Italy: The rains of October favoured pastures. Sowings of fodder crops and irrigation of *marcite* were carried out in good conditions. Crop condition is satisfactory save in some provinces of the South where drought damage occurred.

Latvia: Clover, meadow hay and other fodder crops are sufficient to cover requirements and quality is good.

Poland: On 15 October condition of clover was 3.2 against 3 5 at the corresponding date last year.

Czechoslovakia: The year has been very favourable to meadow and pasture as well as to hoed crops and forecasts are large. The following table gives the area and production of the principal fodder crops, including the production of straw.

Area (000 acres).

	1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
Clovers	1,930	1,841	1,848	104.9	104.5
Green fodder	307	398	367	77.1	83.7
Temporary meadows	70	69	90	100.9	78.0
Permanent meadows	3,110	3,141	3,144	99.0	98.9
Straw of legumes and mixtures for feed.	267	186	209	143.7	127.9
Cereal straw (barley, oats, millet and buck-wheat) for feed	3,453	3,492	3,694	98.9	93.5
Cereal straw (wheat, rye, meslin and spelt) for litter	4,801	4,888	4,680	98.2	102.9

		1936	1935	Average 1930-1934	% 1936 1935 = 100	% 1936 Average = 100
		Production.				
Clovers	(000 centals)	100,595	62,757	63,451	160.3	158.5
	(000 sh. tons)	5,030	3,138	3,172		
Green fodder	(000 centals)	10,651	9,166	8,832	116.2	120.6
	(000 sh. tons)	533	458	442		
Temporary meadows . .	(000 centals)	2,753	1,736	2,823	158.6	97 5
	(000 sh. tons)	138	87	141		
Permanent meadows . .	(000 centals)	123,866	80,342	96,733	154.2	128.0
	(000 sh. tons)	6,193	4,017	4,837		
Straw of legumes and mixtures for feed). .	(000 centals)	5,571	2,657	3,597	209.7	154.9
	(000 sh. tons)	279	133	180		
Cereal straw (barley and oats for feed	(000 centals)	75,501	58,537	75,477	129.0	100 0
	(000 sh. tons)	3,775	2,927	3,774		
With some exceptions, mangels	(000 centals)	147,386	132,829	122,197	111.0	120 6
	(000 sh. tons)	7,369	6,641	6,110		

Canada: The following are the latest estimates of production of certain fodder crops.

		1936	1935	Average 1930-34	% 1936 1935 = 100	% 1936 Average = 100
Hay and clover . .	(000 centals)	277,860	281,200	268,450	98.8	103 5
	(000 sh. tons)	13,893	14,060	13,423		
Alfalfa	(000 centals)	39,320	39,174	31,088	100,4	126,5
	(000 sh. tons)	1,966	1,959	1,554		
Fodder maize	(000 centals)	62,360	81,560	64,619	76.5	96.5
	(000 sh. tons)	3,118	4,078	3,231		
Turnips, etc.	(000 cwt.)	37,854	35,110	36,676		
	(000 sh. tons)	1,893	1,756	1,834	107.8	103.2

Egypt: Sowing of the bersim crop is progressing to a great extent, and the early and general cultivations were completed in Lower Egypt, during October. The general sowing is in progress in Upper Egypt. Irrigation and manuring of some of the early-sown crops are in progress. Germination and growth are satisfactory.

LIVESTOCK AND DERIVATIVES

Slaughterings in Germany.

The following table shows the numbers of animals slaughtered and the quantity of meat produced during the third quarter of 1936 and those of the nine months of the same year. These data are compared with the corresponding figures of the three preceding years.

CATEGORIES	1936				Total January-September			
	July	August	Sept	Total July-Sept	1936	1935 1)	1934 2)	1933 2)
Number of animals slaughtered.								
Steers	17,031	19,479	29,354	65,864	195,588	244,623	281,031	232,974
Bulls	31,668	29,248	32,816	93,732	275,863	352,566	399,323	405,323
Cows	134,740	132,994	144,624	412,358	1,259,985	1,511,184	1,298,104	1,100,724
Young animals over 3 months	57,306	60,365	71,041	188,712	541,716	870,442	874,732	783,085
Heifers under 3 months	394.376	345,185	355,445	1,095,006	3,451,750	3,755,840	3,810,748	3,308,655
Total cattle	*635,121*	*587,271*	*633,280*	*1,855,672*	*5,724,902*	*6,734,655*	*6,663,938*	*5,830,761*
Sheep	160.621	179,779	185,195	525,595	1,104,535	1,007,602	1,075,529	1,182,032
Goats	5,578	7,549	19,728	32,855	223,288	210,203	188,054	163,042
Pigs	1,407,080	1,071,161	1,172,556	3,650,797	12,876,848	13,491,054	13,698,949	12,898,138
Horses	7,111	7,495	9,895	24,501	79,292	77,575	73,591	70,104
Total quantities of meat produced (thousand lb.)								
Beef	139,008	140,754	159,397	439,159	1,354,810	1,598,998	1,574,013	1,424,672
Veal	38,820	35,162	35,605	109,586	335,507	352,777	355,218	318,454
Total	*177,828*	*175,916*	*195,002*	*548,745*	*1,690,317*	*1,951,775*	*1,929,231*	*1,743,126*
Mutton	8,567	9,925	10,389	28,882	61,149	55,880	62,133	69,685
Goat meat	302	406	883	1,591	19,862	20,261	20,867	20 388
Pigmeat	306,129	235 691	267,940	809,760	3,364,167	3,374,259	3,475,944	3,214,464
Horse flesh	4,024	4,716	5,827	14,167	46,323	46,907	43,571	41,702
GENERAL TOTAL	**496,850**	**426,254**	**480,041**	**1,403,145**	**5,181,818**	**5,449,082**	**5,531,746**	**5,089,365**

(1) In the first quarter of 1935 the Saar Territory is not included — (2) Not including Saar Territory

Pigs in Denmark.[1]

(Thousands)

Classification	1936							1935				
	10 Oct.	29 Aug.	18 July	13 June	2 May	21 Mar	8 Feb	28 Dec.	16 Nov.	5 Oct.	24 Aug.	13 July
Boars for breeding.	23	23	23	24	23	22	21	21	21	21	21	20
Sows in farrow for first time	58	77	111	125	126	117	95	97	97	86	75	83
Other sows in farrow	182	178	184	189	182	172	175	181	181	178	184	188
Sows in milk	108	122	108	99	93	100	96	90	89	98	90	78
Sows not yet covered (and not for slaughter)	42	39	30	27	25	25	23	21	26	29	25	24
Sows for slaughter.	28	22	16	15	14	15	18	16	17	14	9	10
Total of sows	*418*	*438*	*449*	*455*	*440*	*429*	*407*	*405*	*410*	*405*	*383*	*383*
Sucking pigs not weaned	892	1,006	887	810	768	819	779	732	766	860	782	673
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg	1,024	947	843	826	852	826	816	885	882	792	742	772
Pigs of 35 and under 60 kg.	756	696	761	700	686	700	722	723	674	683	693	733
Fat pigs of 60 kg. and over	556	608	540	559	562	558	518	450	565	534	545	453
Total pigs	*3,669*	*3,718*	*3,503*	*3,374*	*3,331*	*3,354*	*3,263*	*3.216*	*3,318*	*3,295*	*3,166*	*3,034*

Current information on livestock and derivatives.

Estonia: During October the milk yield decreased.

France: After the short period of cold at the beginning of the month mild damp weather favoured an increased milk yield, above the average of the preceding years in the same month. Moreover the increase in number of milk cows during recent years constitutes a constant factor in the increase of yield.

Greece: In accordance with a new provision issued by the Government at the beginning of November, the prohibition of the consumption of meat mentioned in our article on livestock in the September Bulletin has been indefinitely prolonged

By the terms of this new decree even the slaughtering of all types of animals for food is forbidden throughout the country on Tuesdays and Thursdays every week, moreover the slaughtering of lambs and kids is also forbidden on the day before a holiday.

Netherlands: Feeding conditions of milk cows in byres and at pasture were good during October. The quantity of fodder available was sufficient and of good quality.

In comparison with last year's figures the milk yield has decreased by 5 per cent. in Limburg In all the other provinces it has risen on an average by 10 per cent.

French Morocco: Pastures have been improved, especially in the north and centre, by the rain which fell in October, but have not improved enough to ensure sufficient bite for the animals. There is still, however, enough straw and dried grass everywhere.

Union of South Africa: Stock was generally in good condition in September but in some parts grazing was becoming short, and the first summer rains were anxiously awaited In general wool appears to be of good quality.

LATEST NEWS

Germany (telegram of 25 November): The production of wine (*most*) this year is about 71,712,000 Imperial gallons (86,120,000 American gallons) against 91,192,000 (109,513,000) in 1935 and 60,266,000 (72,374,000) on the average of the five years ending 1934; percentages 78 6 and 119.0

(Telegram of 26 November). The production of potatoes (late crop) this year is about 985,335,000 centals (1,642,192 thousand bushels) against 875,452,000 (1,459,057) in 1935 and 945,201,000 (1,575,454) on the average of the five years ending 1934, percentages 112.6 and 104 2

Taiwan (telegram of 26 November): According to the most recent estimate production of rough rice (first crop) this year is about 19,579,000 centals (45,500,000 bushels) against 17,256,000 (38,346,000) in 1935-36 and 15,775,000 (35,055,000) on the average of the five years ending 1934-35; percentages 113 5 and 124 1

Algeria. Production of summer potatoes is satisfactory, that of tobacco average Vines and olives are giving only a half-crop.

TRADE

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
Wheat. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Bulgaria	388	185	0	0	996	185	0	0	683	0
Hungary	2,055	1,195	0	0	3,858	1,323	0	0	8,164	0
Lithuania	0	7	0	0	0	13	0	0	1,274	0
Poland	238	29	0	0	705	112	0	0	1,164	0
Romania	...	...	...	...	1) 3,023	1) 306	1) 0	1) 0	3,521	2
Yugoslavia	2,008	0	0	0	3,148	2	0	0	368	0
U. S. S. R.	0	4,394	0	0	7	6,726	0	0	16,801	134
Canada	12,432	10,364	0	0	25,126	23,382	2	0	139,214	9
Argentina	2,317	6,078	—	—	4,431	12,381	—	—	39,328	—
Chile	...	...	...	...	1) 0	1) 33	1) 0	1) 0	1,314	0
Syria and Lebanon	95	11	0	2	108	13	0	2	181	7
Algeria	...	...	...	..	1) 432	1) 364	1) 0	1) 11	5,523	653
French Morocco	15	538	18	0	18	778	24	0	2,919	0
Tunis	4	428	66	13	13	1,049	110	26	2,421	183
Australia	3,636	3,051	0	0	5,179	4,821	0	0	43,936	0
New Zealand	...	...	...	..	1) 0	1) 0	1) 37	1) 7	0	266
Importing Countries:										
Germany	0	220	35	110	42	220	181	304	99	2,138
Austria	0	0	262	159	0	0	668	298	0	3,192
Belgium	110	66	3,014	2,414	128	126	5,375	4,451	970	24,319
Denmark	31	15	388	340	31	15	655	728	35	5,152
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	20	0	0	0	44	0	0	84	84
Irish Free State	0	0	298	395	0	0	926	1,232	0	8,259
Finland	0	0	121	148	0	0	315	251	0	1,618
France	104	862	578	1,744	699	2,017	1,294	3,349	8,642	16,056
Gr. Brit. and N. Irel.	33	51	8,501	8,212	258	71	16,883	16,098	734	114,400
Greece	...	...	...	...	1) 0	1) 0	1) 922	1) 1 087	0	8,823
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	161	0	0	0	483	0	0	926	0
Norway	0	0	121	214	0	0	359	481	0	3,382
Netherlands	4	2	787	1,224	4	2	1,523	2,313	4	11,367
Portugal	0	0	0	11	0	0	13	40	2,443	152
Sweden	185	423	112	123	628	597	201	174	2,119	1,010
Switzerland	0	0	930	1,230	2	0	1,662	1,922	2	10,007
Czechoslovakia	22	0	2	952	24	2	2	1,127	4	1,294
United States	293	9	3,457	2,606	425	13	7,901	4,775	163	31,791
Ceylon	—	—	9	13	—	—	22	26	—	99
China	229	22	66	434	406	44	110	1,177	160	3,735
India	842	51	2	0	1,041	55	2	0	439	298
Japan	—	—	...	...	—	—	1) 386	1) 655	—	8,400
Egypt	...	...	...	...	1) 0	1) 0	1) 0	1) 0	2	2
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 0	1) 2	0	24
Totals	**25,038**	**28,182**	**18,767**	**20,344**	**50,732**	**55,182**	**39,573**	**40,536**	**284,837**	**257,351**
Rye. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries.										
Germany	0	258	9	55	0	260	15	112	820	690
Bulgaria	4	0	0	0	4	0	0	0	121	0
Estonia	0	0	0	0	29	46	0	0	333	331
Hungary	320	51	0	0	481	71	0	0	209	0
Latvia	267	196	0	0	496	317	0	0	2,041	0
Lithuania	26	97	0	0	35	185	0	0	1,973	0
Poland	648	231	0	0	1,193	761	0	0	4,782	0
Romania	...	...	...	...	1) 108	1) 0	1) 0	1) 0	348	0
Sweden	0	86	4	0	4	165	9	2	904	18
U. S. S. R.	194	141	—	—	553	340	—	—	1,475	—
Canada	298	29	0	0	600	71	0	0	1,376	0
Argentina	379	132	—	—	520	231	—	—	2,288	—
Algeria	...	...	...	...	1) 11	1) 7	1) 0	1) 0	26	0
Importing Countries:										
Austria	0	0	44	0	0	0	324	0	2	994
Belgium	0	0	212	207	7	18	540	467	26	3,680
Denmark	0	0	496	355	0	0	906	800	0	4,176
Finland	0	0	15	9	0	0	37	68	0	1,504
France	0	0	9	7	0	0	15	9	0	29
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	337	388	0	0	492	842	0	3,358
Netherlands	161	0	82	53	174	0	260	194	77	1,748
Switzerland	0	0	2	9	0	0	18	20	0	342
Czechoslovakia	0	0	2	0	0	0	2	2	4	20
United States	0	0	344	37	0	2	977	855	4	1,221
Totals	**2,297**	**1,221**	**1,556**	**1,120**	**4,215**	**2,474**	**3,595**	**3,371**	**16,809**	**18,111**

---

1) See Notes page 837.

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries										
Germany	0	4	0	0	33	13	0	2	758	31
Bulgaria	20	0	0	0	20	0	0	0	0	0
Spain	—	—	—	—	—	—	—	—	—	—
France	198	227	90	95	390	445	203	179	3,197	1,226
Hungary	108	161	0	0	196	258	0	0	1,248	0
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	176	117	0	0	320	214	0	0	2,163	0
Romania	...	...	...	...	1) 2	1) 2	1) 0	1) 0	2	0
Yugoslavia	13	7	0	0	24	11	0	0	75	0
U S S R.	157	84	0	229	276	150	15	229	741	425
Canada	741	776	11	7	1,501	1,515	22	20	9,758	121
United States	805	547	7	4	1,402	1,076	13	7	6,733	88
Argentina	181	146	—	—	306	331	—	—	1,759	—
Chile	...	...	...	...	1) 0	1) 2	1) 0	1) 2	73	31
India	46	40	0	2	75	77	7	2	403	11
Japan	...	.	...	...	1) 119	1) 538	1) 51	1) 2	4,112	243
Algeria	...	.	...	...	1) 73	1) 53	1) 4	1) 9	842	88
French Morocco	0	0	0	0	7	0	0	0	4	0
Tunis	55	55	20	0	77	86	33	2	410	31
Australia	650	1.102	0	0	1,636	2 011	0	0	12,148	0
Importing Countries,										
Austria	0	0	377	82	0	0	417	130	2	750
Belgium	20	4	18	4	24	9	37	13	60	90
Denmark	2	7	9	11	7	9	18	35	22	218
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	13	13	0	0	22	24	0	159
Finland	0	0	33	57	0	0	88	126	0	688
Gr Brit and N Irel	176	223	653	586	392	492	1,407	1,303	2,652	9,528
Greece	..	.	...	.	1) 0	1) 0	1) 0	1) 2	0	22
Norway	0	0	24	40	0	2	77	84	4	884
Netherlands	7	0	176	64	7	2	262	132	7	1,206
Portugal	—	—	4	7	—	—	7	22	—	97
Sweden	2	2	0	0	4	2	0	0	18	0
Czechoslovakia	0	0	0	2	0	2	2	2	7	24
Ceylon	—	—	26	33	—	—	60	71	—	337
China	53	0	49	88	134	2	93	179	22	842
Indo China	—	—	44	26	—	—	90	60	0	390
Java and Madura	—	—	..	...	—	—	1) 71	1) 77	—	1,281
Syria and Lebanon	22	2	7	18	42	4	7	24	121	77
Egypt	...	...	...	...	1) 0	1) 0	1) 2	1) 4	0	77
Union of South Afr	..	...	..	...	1) 0	1) 0	1) 0	1) 2	2	13
New Zealand	..	...	.	.	1) 0	1) 0	1) 7	1) 13	0	216
Totals	**3,432**	**3,504**	**1,511**	**1,368**	**7,067**	**7,306**	**3,015**	**2,757**	**47,343**	**19,194**
	Barley. — Thousand centals (1 cental = 100 lb).									
Exporting Countries										
Bulgaria	44	18	0	0	62	20	0	0	44	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	66	24	0	0	73	42	0	0	282	362
Lithuania	0	0	0	0	0	2	0	0	328	0
Poland	1,105	697	0	0	1,647	897	0	0	7,727	0
Romania		..	.	..	1) 1,801	1) 761	1) 0	1) 0	4,065	0
Czechoslovakia	209	71	0	0	271	73	0	0	805	2
Yugoslavia	2	0	0	9	2	0	0	9	2	24
U S S. R.	0	3,358	—	—	185	5,346	—	—	14,125	—
Canada	1,283	117	0	0	2,224	463	0	0	3 684	0
United States	483	937	791	4	1,254	1,213	1,482	7	4,711	337
Argentina	309	176	—	—	489	322	—	—	4,416	—
Chile	...	...	...	..	1) 121	1) 13	1) 0	1) 0	617	—
India	7	0	4	18	7	0	4	26	40	121
Algeria	...	...	..	...	1) 306	1) 40	1) 176	1) 55	789	575
Egypt	...	...	...	...	1) 7	1) 0	1) 2	1) 0	2	13
French Morocco	1,179	139	0	0	2,200	227	0	0	3,192	0
Australia	11	161	0	0	93	225	0	0	1,241	0
Importing Countries										
Germany	0	0	7	51	0	0	33	201	0	1,532
Austria	0	0	117	115	0	0	214	183	0	1,175
Belgium	22	15	1,444	1,058	73	44	2,035	1,550	456	9,246
Denmark	198	381	0	2	207	443	2	73	1,541	77
Irish Free State	0	4	0	0	0	4	0	0	7	452
France	0	0	963	273	0	0	1,623	461	0	5,057
Gr. Brit. and N. Irel.	0	0	2,815	2,780	0	0	4,420	4,639	4	22,254
Greece	...	...	...	...	1) 0	1) 0	1) 11	1) 7	0	154
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	82	62	0	0	121	68	0	337
Netherlands	121	31	258	653	132	33	699	1,259	214	6,605
Switzerland	0	0	141	152	0	0	223	231	0	2,546
Syria and Lebanon	304	93	0	2	437	99	0	2	928	7
Tunis	0	342	198	4	0	633	425	13	1,667	130
Totals	**5,343**	**6,564**	**6,820**	**5,188**	**11,591**	**10,900**	**11,470**	**8,784**	**50,887**	**51,006**

Oats. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
Exporting Countries:										
Irish Free State	0	0	0	0	0	0	0	0	0	0
Hungary	46	0	0	0	62	0	0	0	108	0
Lithuania	0	2	0	0	0	2	0	0	518	0
Poland	190	201	0	0	302	227	0	0	2,595	0
Romania	...	...	...	..	1) 71	1) 49	1) 0	1) 0	386	0
Czechoslovakia	15	15	0	0	44	55	0	0	82	13
Yugoslavia	0	22	0	0	0	51	0	0	73	0
Canada	373	278	0	0	500	500	0	0	4,074	115
United States	2	11	4	2	2	13	4	2	205	22
Argentina	355	364	—	—	423	1,065	—	—	3,086	—
Chile	...	...	...	...	1) 64	1) 62	1) 0	1) 0	670	0
Tunis	0	18	0	0	2	64	0	0	214	0
Australia	4	7	2	0	11	13	2	0	97	2
Importing Countries:										
Germany	0	0	7	15	0	0	7	97	0	463
Austria	0	0	53	40	0	0	130	88	0	613
Belgium	0	0	29	0	0	0	46	15	0	897
Denmark	0	22	0	0	0	29	2	18	439	143
Estonia	0	0	0	0	0	0	0	0	0	44
Finland	0	0	11	0	0	0	31	0	0	769
France	0	0	198	20	2	0	311	53	7	476
Gr. Brit. and N. Irel.	0	2	117	207	2	2	448	373	20	2,866
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	0	0	0	0	0	0	130	0
Norway	0	0	0	0	0	0	0	0	0	7
Netherlands	18	0	20	57	18	0	64	112	214	516
Sweden	0	0	9	11	0	0	22	11	181	280
Switzerland	0	0	324	238	0	0	582	569	0	4,416
Algeria	...	.	.	.	1) 172	1) 4	1) 9	1) 13	260	46
Totals	**1,003**	**942**	**774**	**590**	**1,675**	**2,136**	**1,658**	**1,351**	**13,359**	**11,688**

Maize. — Thousand centals (1 cental = 100 lb)

COUNTRIES	September				Eleven months (November 1-September 30)				Twelve months (Nov 1-Oct 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
Exporting Countries										
Bulgaria	123	0	0	0	1,823	399	0	0	401	0
Hungary	0	0	123	789	31	130	7,229	2,302	130	2,996
Romania	..	..	..	..	1) 17,035	1) 9,440	1) 0	1) 0	11,177	0
Yugoslavia	104	944	0	0	1,440	12,134	0	0	17,652	0
United States	2	2	2,321	1,673	282	249	9,184	20,408	251	23,034
Argentina	25,122	13,847	—	—	150,473	128,290	—	—	143,424	—
Java and Madura	64	24	—	—	2,370	1 426	—	—	1,431	—
Indo-China	1,135	1,080	—	—	8,706	7,994	—	—	10,099	—
Syria and Lebanon	0	0	0	0	79	2	2	7	2	7
Egypt	...	...	...	...	1) 2	1) 0	1) 9	1) 24	0	31
Union of South Afr.	...	...	...	..	1) 1,446	1) 7,791	1) 4	1) 0	10,247	0
Importing Countries										
Germany	0	0	60	251	0	0	4,120	7,606	0	7,738
Austria	0	0	498	567	0	0	6,665	8,819	0	9,431
Belgium	26	66	1,321	1,623	476	664	17,452	14,700	728	16,211
Denmark	0	0	355	342	0	0	3,691	4,848	0	5,084
Spain	—	—	—	—	—	—	—	—	0	1,052
Irish Free State	0	0	187	428	0	0	4,240	5,699	0	6,237
Finland	0	0	150	203	0	0	1,967	800	0	988
France	0	0	1,393	950	2	9	13,021	13,018	9	14,154
Gr. Brit. and N. Irel.	234	139	6,680	5,445	1 367	2,077	70,312	57,400	2,222	64,492
Greece	...	...	...	...	1) 0	1) 0	1) 1,473	1) 913	0	972
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	227	185	0	0	2,498	2,392	0	2,754
Netherlands	0	0	1,422	1,836	2	0	18,093	17,644	0	19,321
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	26	31	2	0	348	509	2	548
Sweden	0	0	73	37	0	0	1,301	809	0	891
Switzerland	0	0	90	168	0	0	1,567	1,550	0	1,892
Czechoslovakia	0	0	240	258	0	0	2,198	2,368	0	2,672
Canada	0	0	231	406	51	4	2,463	3,971	4	4,566
Japan	—	—	...	...	—	—	1) 5,346	1) 893	—	1,777
Tunis	0	0	29	0	4	4	64	55	7	55
Totals	**26,810**	**16,102**	**15,426**	**15,192**	**185,591**	**170,613**	**173,247**	**166,735**	**192,786**	**186,903**

(1 See notes page 847.

COUNTRIES	September				Nine months (January 1-September 30)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Rice. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Spain	—	—	—	—	—	—	—	—	613	0
Italy	—	—	—	—	—	—	—	—	2,815	73
United States	2	90	123	15	110	1,087	754	454	1,667	534
Brazil	...	...	—	—	1) 1,027	1) 1,179	—	—	2,090	—
India	1,728	2,053	130	637	23,989	32,128	3,128	3,322	37,179	4,784
Indo-China	3,025	2,130	...	...	31,202	33,151	1) 42	1) 24	38,921	35
Siam	3,012	2,447	—	—	26,958	25,146	—	—	34,350	—
Egypt	...	...	...	...	1) 1,678	1) 712	1) 2	1) 13	1,561	15
Importing Countries:										
Germany	55	68	355	306	399	357	2,978	3,124	611	4,209
Austria	0	0	51	86	0	0	430	511	0	745
Belgium	20	2	121	93	108	31	752	692	62	933
Denmark	0	0	0	7	0	0	66	66	0	90
Estonia	—	—	2	2	—	—	15	11	—	18
Irish Free State	0	0	9	2	0	0	64	46	0	55
France	33	24	1,825	580	256	463	12,672	7,064	507	9,464
Gr. Brit. and N Irel.	22	9	134	104	139	123	1,872	2,094	141	2,427
Greece	...	...	...	..	1) 0	1) 0	1) 419	1) 397	0	593
Hungary	0	0	22	22	0	0	271	214	0	414
Latvia	0	0	0	2	0	0	11	9	0	13
Lithuania	0	0	2	0	0	0	7	4	0	9
Norway	0	0	7	7	0	0	86	84	0	110
Netherlands	386	190	465	247	1,625	1,521	3,133	2,282	2,044	3,287
Poland	22	20	57	42	161	130	802	1,041	196	1,045
Portugal	—	—	190	33	—	—	432	406	—	414
Sweden	—	—	9	7	—	—	192	183	—	227
Switzerland	0	0	18	49	0	0	293	340	0	511
Czechoslovakia	0	0	79	97	0	0	836	977	0	1,473
Yugoslavia	0	0	13	18	0	0	282	282	0	441
Canada	4	0	9	4	20	2	701	586	4	644
Chile	—	—	...	...	—	—	1) 271	1) 170	—	306
Ceylon	0	0	996	1,149	2	2	9,176	9,365	2	12,511
China	31	2	154	423	448	62	6,702	27,659	146	28,581
Java and Madura	35	35	0	4	159	77	168	2.491	154	2,604
Japan	...	...	...	...	1) 97	1) 639	1) 245	1) 154	708	866
Syria and Lebanon	0	0	29	29	0	0	251	280	0	414
Algeria	...	...	...	...	1) 2	1) 0	1) 190	1) 108	2	152
Tunis	0	0	13	0	0	0	44	22	0	26
Union of South Afr.	...	..	...	..	1) 0	1) 0	1) 864	1) 714	0	1,204
Australia	29	20	7	0	183	187	44	31	247	51
New Zealand	...	...	..	...	1) 0	1) 0	1) 55	1) 53	0	73
Totals	**8,404**	**7,090**	**4,820**	**3,965**	**88,563**	**96,997**	**48,250**	**65,273**	**124,020**	**79,351**
	Linseed. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Lithuania	26	2	0	0	247	93	0	0	280	0
Argentina	3,355	2,588	—	—	23,052	30,838	—	—	39,154	—
India	930	115	0	0	5,221	1,501	0	0	2,919	0
Tunis	0	0	0	0	0	2	0	0	2	0
Importing Countries.										
Germany	0	0	216	860	0	0	3,620	4,372	0	5 452
Belgium	9	4	163	130	101	88	1,768	1,839	112	2.725
Denmark	—	—	31	37	—	—	342	403	—	562
Spain	—	—	—	—	—	—	—	—	—	558
Estonia	0	0	0	0	2	2	20	4	4	20
Finland	0	0	20	2	0	0	110	60	0	84
France	0	0	556	337	2	2	5,029	4,299	4	5,695
Gr Brit. and N. Irel.	0	0	545	359	0	2	4,771	3,907	2	5,774
Greece	...	...	...	...	1) 0	1) 0	1) 37	1) 75	0	119
Hungary	0	0	0	0	0	4	15	0	9	0
Italy	—	—	—	—	—	—	—	—	0	1,590
Latvia	0	0	0	9	26	49	35	64	57	84
Norway	0	0	49	15	0	0	397	428	0	536
Netherlands	4	4	708	604	82	66	5,490	6,982	77	8,871
Poland	2	0	0	0	77	2	0	0	26	0
Sweden	—	—	104	42	—	—	626	697	—	915
Czechoslovakia	0	0	15	15	0	0	357	423	0	578
Yugoslavia	0	0	0	11	0	0	60	146	0	185
Canada	0	0	77	0	29	4	545	256	11	284
United States	—	—	1,014	741	—	—	5,278	7,663	—	9,833
Japan	...	...	...	...	1) 0	1) 2	1) 170	1) 373	2	478
Australia	0	0	11	15	0	0	375	690	0	750
Totals	**4,326**	**2,713**	**3,509**	**3,177**	**28,839**	**32,655**	**29,045**	**32,681**	**42,659**	**45,093**

---

1) See notes page 847.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (Januay 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Butter. — (Thousand lb.).									
Exporting Countries:										
Austria	814	551	0	2	5,313	4,407	9	11	5,688	18
Denmark	27,593	24,438	9	22	244,172	231,656	179	22	304,936	0
Estonia	4,032	3,760	0	0	18,521	18,376	0	0	23,894	0
Irish Free State	7,319	5,745	0	7	47,395	52,602	9	40	59,470	40
Finland	2,456	1,737	0	0	23,113	17,439	0	0	22,582	0
Hungary	1,770	602	0	0	6,927	3,300	0	0	5,516	0
Latvia	3,891	3,759	0	0	28,920	30,001	0	0	37,073	0
Lithuania	3,805	3,325	0	0	24,430	20,979	0	0	26,795	0
Norway	4	0	0	0	366	247	0	0	417	4
Netherlands	11,951	7,765	2	18	104,949	80,912	40	251	103,146	430
Poland	3,344	1,530	0	0	18,722	7,879	0	2	12,533	2
Sweden	4,072	3,832	0	0	31,013	37,525	412	2	44,664	1,340
U. S S. R.	8,591	9,002	0	33	30,748	57,058	15,514	428	64,801	529
Argentina	366	62	—	—	14,853	9,786	—	—	14,941	—
India	15	29	57	62	168	170	703	556	240	789
Syria and Lebanon	53	35	13	18	445	381	130	256	463	309
Australia	10,318	10,452	0	0	129,165	173,559	4	2	256,769	2
New Zealand	27,781	16,372	—	—	225,256	213,503	—	—	312,445	—
Importing Countries										
Germany	0	0	14,381	13,898	0	11	114,405	113,697	13	156,529
Belgium	9	4	86	399	53	49	7,339	8,466	71	13,312
Spain	—	—	—	—	—	—	—	—	26	79
France	1,698	1,270	161	165	9,791	8,565	3,915	1,027	11,605	1,504
Gr. Brit. and N. Irel.	602	714	97,577	75,021	7,068	12,926	834,170	839,164	15,768	1,076,827
Greece	—	—	...	..	—	—	1) 542	1) 593	—	1,014
Italy	—	—	—	—	—	—	—	—	437	930
Switzerland	0	0	13	11	2	2	1,519	128	2	302
Czechoslovakia	0	0	119	132	2	0	485	2 094	4	2,928
Canada	214	220	0	44	4,949	503	110	139	7,696	148
United States	64	55	538	121	661	556	6,709	21,934	957	22,675
Ceylon	—	—	66	40	—	—	571	611	—	855
Java and Madura	—	—	...	...	—	—	1) 6,407	1) 6,989	—	10,247
Japan	. .	..	...	..	1) 496	1) 243	1) 9	1) 15	355	22
Egypt	...	...	...	..	1) 37	1) 115	1) 822	1) 661	128	994
Tunis	0	2	137	62	4	15	1,400	1,444	24	2,017
Totals	**120,762**	**94,270**	**113,150**	**90,055**	**977,539**	**982,765**	**995,403**	**998,232**	**1,333,459**	**1,293,846**
	Cheese. — (Thousand lb.).									
Exporting Countries:										
Bulgaria	564	503	0	0	2,930	2,738	0	0	4,224	0
Denmark	1,486	1,276	2	0	16,021	9,991	15	27	14,689	29
Finland	1,001	728	2	2	7,952	6,634	11	13	9,365	22
Italy	—	—	—	—	—	—	—	—	61,223	10,657
Lithuania	185	7	0	0	642	459	2	2	496	2
Norway	309	289	26	22	2,496	2,167	163	172	3,146	251
Netherlands	11,374	12,961	88	68	91,810	102,379	639	542	134,597	838
Poland	2	2	11	18	110	547	161	223	620	287
Switzerland	4,277	4,127	287	322	32,543	30,406	2,260	2,442	40,248	3,851
Czechoslovakia	57	141	313	282	1,052	1,151	2,068	2,024	1,814	2,663
Yugoslavia	476	558	2	7	2,650	2,870	24	42	4,381	57
Canada	9,908	15,950	117	84	44,778	31,945	719	847	55,720	1,274
Australia	104	833	11	11	6,213	10,624	60	55	15,335	77
New Zealand	12,730	10,421	...	...	133,658	143,530	1) 0	1) 0	193,489	0
Importing Countries:										
Germany	13	44	5,598	5,736	205	560	46,875	45,060	728	61,661
Austria	311	668	141	152	5,948	5,448	1,497	1,431	7,366	1,724
Belgium	37	62	5,108	5,503	265	245	37,798	39,496	355	50,726
Spain	—	—	—	—	—	—	—	—	108	2,524
Irish Free State	236	172	2	2	1 160	443	75	53	1,027	62
France	1,554	1,592	2,954	3,219	16,934	17,553	23,660	24,762	24,628	34,421
Gr. Brit and N. Irel	388	500	23,629	26,594	4,453	4,178	213,939	229,248	5,818	282,933
Greece	. .	...	...	...	1) 326	1) 126	1) 273	1) 941	181	1,120
Hungary	33	31	0	0	527	179	0	2	278	4
Portugal	—	—	31	60	—	—	212	291	—	417
Sweden	—	—	311	192	—	—	2,337	955	—	2,502
United States	88	68	5,796	3,633	862	875	42,064	34,017	1,153	48,934
India	0	0	106	101	2	2	756	809	4	1,276
Java and Madura	—	—	...	...	—	—	1) 1,102	1) 1,230	—	1,920
Syria and Lebanon	51	29	73	60	278	430	708	710	503	979
Algeria	...	...	...	...	1) 55	1) 86	1) 7,150	1) 7,544	119	13,349
Egypt	...	.	. .	...	1) 18	1) 57	1) 4,493	1) 4,815	86	7,330
Tunis	0	0	262	106	95	35	2,017	1,947	46	2,948
Totals	**45,184**	**50,962**	**44,870**	**46,174**	**373,983**	**375,658**	**391,078**	**399,695**	**581,747**	**534,838**

---

1) See notes page 847.

Cotton. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	September				Two months (August 1-September 30)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
Exporting Countries:										
United States	2.981	2,672	46	31	3,940	3,937	110	73	32,611	791
Argentina	137	101	—	—	298	271	—	—	1,030	—
Brazil	...	...	—	—	1) 668	1) 265	—	—	3,549	—
India	642	505	40	86	1,321	1,001	115	185	14,961	1,285
Egypt	...	...	—	—	1) 218	1) 280	—	—	8,073	—
Importing Countries:										
Germany	0	119	439	631	2	185	825	1,347	573	7,264
Austria	0	0	55	53	0	0	99	112	0	886
Belgium	46	37	152	128	101	88	298	306	653	2,374
Denmark	—	—	15	15	—	—	24	24	—	176
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	11	9	0	0	20	18	0	119
Finland	0	0	20	20	0	0	35	35	0	280
France	40	22	185	262	64	42	503	697	335	7,123
Gr. Brit. and N. Irel.	46	62	974	628	130	121	2,121	1,246	747	15,168
Greece	...		...	..	1) 0	1) 0	1) 7	1) 15	11	110
Hungary	0	0	44	33	0	0	86	68	0	560
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	7	9	0	0	13	15	0	97
Norway	0	0	2	2	0	0	4	7	0	71
Netherlands	2	0	75	62	4	0	152	141	4	1,001
Poland	0	0	139	128	0	0	271	254	4	1,614
Portugal	—	—	26	40	—	—	49	75	—	560
Sweden	—	—	29	20	—	—	68	71	—	672
Switzerland	0	0	18	22	0	0	51	42	0	549
Czechoslovakia	4	4	132	134	13	9	291	269	49	2,130
Yugoslavia	0	0	13	18	0	0	40	49	0	375
Canada	—	—	93	60	—	—	165	130	—	1,358
China	26	37	46	44	49	60	97	108	892	915
Japan	...		.	. .	1) 42	1) 31	1) 1,323	1) 873	582	18.089
Algeria	. .				1) 0	1) 0	1) 0	1) 0	0	4
Totals	3,924	3,559	2,561	2,435	6,850	6,290	6,767	6,160	64,074	63,571

Wool. — (Thousand lb.)

COUNTRIES					Twelve months (September 1-August 31)				Twelve months (Sept 1-August 31)	
					1935-36	1934-35	1935-36	1934-35		
Exporting Countries										
Irish Free State	1,748	1,506	57	49	15,977	13,486	562	646	—	—
Hungary	110	46	75	198	952	1,867	1,900	3,267	—	—
Argentina a)	7,670	5 589	—	—	246,154	271,106	—	—	—	—
Argentina b)	2,791	3,075	—	—	32 911	32,218	—	—	—	—
Chile	...	.	..	..	19,004	22,139	1,391	240	—	—
India	7,688	7,487	452	390	56,416	52,505	6,832	7,423	—	—
Syria and Lebanon	985	1,021	42	53	4,930	5,545	223	82	—	—
Algeria			.		14,793	8,177	2,176	2,337	—	—
Egypt	.	.	..	. .	4,096	3,574	64	55	—	—
Un. of S. Africa a)		. .	. .	..	213,150	213,563	97	57	—	—
Un. of S. Africa b)			.	..	6.512	8,620	2,174	1,468	—	—
Australia a)	52,206	46,564	29	915	732,907	815,232	9,222	3,695	—	—
Australia b)	3,633	4,729	22	42	64,627	73,571	157	132	—	—
New Zealand a)	3,898	5,165	...	...	262,902	160,673	90	101	—	—
New Zealand b)	3,964	3,977	...	. .	52,812	46,196	22	37	—	—
Importing Countries:										
Germany a)	4	84	7,432	7,835	395	5,701	182,850	235,040	—	—
Germany b)	7	66	3,801	2,518	1,146	2,086	35,991	55,398	—	—
Austria	15	24	586	970	251	1,041	23,671	18,843	—	—
Belgium a)	2,897	2,088	7,366	6,724	68,875	99,235	220,496	222,639	—	—
Belgium b)	2,033	1,969	1,111	463	26,553	20,227	5,348	4,394	—	—
Denmark	90	33	869	518	392	401	4,923	4,700	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Finland	0	22	518	481	214	220	5,692	5,417	—	—
France	6,852	3,239	9,211	10,631	56,968	43,863	362,174	374,260	—	—
Gr. Brit. and N. Irel.	13,256	12,979	34,282	27,805	321,201	317,072	879,321	836,329	—	—
Greece	...	...	...	...	1,676	721	11,050	7,568	—	—
Italy a)	—	—	—	—	—	—	—	—	—	—
Italy b)	—	—	—	—	—	—	—	—	—	—
Norway	110	90	251	218	1,111	1,329	2,820	2,304	—	—
Netherlands a)	567	267	569	93	3,499	3,060	6,975	6,276	—	—
Netherlands b)	108	66	306	340	1,235	1,501	5,110	7,857	—	—
Poland	15	0	5,463	2,169	165	112	44,401	36,346	—	—
Sweden	—	—	2,143	1,409	—	—	20,324	18,263	—	—
Switzerland	29	2	1,153	622	256	212	15,973	22,053	—	—
Czechoslovakia	22	55	2,359	2,213	1,074	1,429	43,134	33,213	—	—
Yugoslavia	192	71	597	549	4,958	1,107	9,509	7,690	—	—
Canada	862	1,241	1,140	809	8,543	6,261	22,520	11,973	—	—
United States	0	13	19,639	21,952	24	29	241 894	147,234	—	—
Japan	...	...	...	...	833	507	261,981	224,482	—	—
Tunis	112	62	33	42	1,107	983	518	295	—	—
Totals	111,864	101,530	99,506	90,908	2,228,619	2,235,569	2,431,585	2,302,114	—	—

Coffee. — (Thousand lb.).

COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept. 30)		TWELVE MONTHS (July 1-June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries:					
Brazil	143,460	184,197	433,686	522,233	2,046,622
Colombia	39,882	37,951	130,726	129,377	505,442
India	2,299	672	3,214	875	26,147
Java and Madura	6,274	7,646	12,844	19,350	54,351
Importing Countries.					
Germany	0	0	0	0	0
Belgium	60	42	309	163	728
France	4	0	13	2	4
Gr. Britain and N. Ireland	1,252	1,940	3,993	7,809	23,473
Netherlands	7	531	60	1,761	6,839
Portugal	187	262	697	670	3,430
Switzerland	0	2	0	2	2
Canada	11	20	55	44	214
United-States	459	600	1,739	1,554	8,792
Ceylon	0	0	0	0	2
Syria and Lebanon	0	0	0	0	4
Australia	2	4	15	9	24
Totals	**193,897**	**233,867**	**587,351**	**683,849**	**2,676,074**
			IMPORTS.		
Importing Countries:					
Germany	28,643	28,281	86,391	82,336	329,173
Austria	1,065	939	3,067	2,903	11,462
Belgium	8,728	9,050	28,175	24,762	108,970
Bulgaria	119	141	282	269	1,100
Denmark	7,348	3,411	16,722	11,954	56,467
Spain	—	—	—	—	52,913
Estonia	9	13	66	37	192
Irish Free State	31	20	128	104	606
Finland	4,107	3,494	12,575	10,192	42,428
France	30,627	30,942	97,017	105,009	425,818
Gr. Britain and N. Ireland	703	739	2,000	2,392	52,270
Greece	...	...	1) 2,405	1) 2,134	13,314
Hungary	397	344	994	802	4,398
Italy	—	—	—	—	—
Latvia	24	20	75	46	251
Lithuania	29	33	90	75	412
Norway	2,672	3,075	7,374	10,895	41,515
Netherlands	3,062	7,094	5,860	20,984	91,534
Poland	492	646	2,930	2,350	11,718
Portugal	899	1,537	3,719	3,501	13,336
Sweden	8,964	9,502	25,369	26,057	105,842
Switzerland	2,326	2,105	7,736	12,765	38,281
Czechoslovakia	2,064	2,485	5,637	5,889	23,832
Yugoslavia	1,135	1,171	2,776	3,488	15,210
Canada	3,029	2,288	8,611	7,165	39,196
United States	127,994	149,205	366,220	420,862	1,853,267
Chile	...	...	1) 816	1) 1,713	7,527
Ceylon	450	328	1,102	906	2,738
Japan	...	...	1) 1,369	1) 1,177	10,825
Syria and Lebanon	282	260	556	509	2,390
Algeria	...	...	1) 3,261	1) 5,260	32,452
Egypt	...	...	1) 2,531	1) 3,228	17,324
Tunis	298	181	728	604	3,342
Union of S. Africa	...	...	1) 5,739	1) 5,278	31,654
Australia	315	423	1,069	1,290	4,619
New Zealand	...	...	1) 106	1) 44	437
Exporting Countries:					
India	0	0	0	0	0
Totals	**235,812**	**257,727**	**703,496**	**776,980**	**3,446,813**

Tea. — (Thousand lb.).

COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept. 30)		TWELVE MONTHS (July 1) June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries:					
Ceylon	13,730	12,809	33,808	44,642	223,530
China	10,260	5,531	28,266	20,192	76,975
India	40,332	42,388	111,420	107,394	316,391
Java and Madura.	8,122	7,123	26,228	24,143	118,230
Japan	...	...	1) 10,276	1) 10,322	32,551
Importing Countries:					
Belgium	0	0	2	0	2
Irish Free State	2	2	4	9	22
France	0	0	2	2	18
Gr.Brit.and N. Irel.	5,569	6,215	17,600	16,760	72,067
Netherlands	7	11	24	31	112
Syria and Lebanon	0	0	0	0	11
Algeria	...	...	1) 4	1) 4	9
Union of S. Africa.	...	...	1) 163	1) 15	320
Australia	44	33	161	146	635
New Zealand.	...	...	1) 22	1) 18	126
Totals	**78,066**	**74,112**	**242,980**	**223,678**	**840,999**
			IMPORTS.		
Importing Countries:					
Germany	776	829	2,266	2,500	10,152
Austria	66	88	163	165	789
Belgium	55	40	176	112	562
Denmark	139	101	311	273	1,120
Spain	—	—	—	—	249
Estonia	9	9	22	22	95
Irish Free State	2,169	2,372	5,370	3,949	21,755
Finland	18	24	51	60	276
France	302	247	703	507	2,855
Gr. Britain and N. Ireland	49,124	43,561	126,921	120,095	486,313
Greece	...	...	1) 236	1) 62	445
Hungary.	40	29	93	57	430
Italy	—	—	—	—	—
Latvia.	7	4	13	13	71
Lithuania	11	9	11	18	93
Norway	29	33	68	90	362
Netherlands	2,441	2,249	6,823	7,187	28,980
Poland	238	276	628	814	3,461
Portugal	15	40	75	93	443
Sweden	93	112	236	227	1,016
Switzerland	170	185	388	518	1,819
Czechoslovakia	143	168	282	313	1,166
Yugoslavia	2	42	55	90	381
Canada	2,890	2,965	7,106	8,971	44,214
United States	9,037	8,457	21,345	20,807	83,917
Chile	...	...	1) 1,010	1) 972	4,215
Syria and Lebanon	68	9	90	44	298
Algeria	...	...	1) 1,025	1) 467	2,518
Egypt	...	...	1) 2,599	1) 2,262	13,980
Tunis	207	220	774	789	6,321
Union of S. Africa	...	...	1) 2,661	1) 2,319	13,702
Australia	3,428	3,295	12,622	11,120	41,557
New Zealand.	...	...	1) 2,216	1) 1,779	10,666
Exporting Countries:					
China	93	26	152	126	688
India	683	727	1,283	1,896	5,249
Java and Madura.	...	...	1) 1,115	1) 238	955
Totals	**72,253**	**66,116**	**197,889**	**189,955**	**791,113**

---

1) See notes page 847.

Cacao. — (Thousand lb.).

COUNTRIES	SEPTEMBER 1936	SEPTEMBER 1935	TWELVE MONTHS (Oct. 1-Sept. 30) 1935-36	TWELVE MONTHS (Oct. 1-Sept. 30) 1934-35	TWELVE MONTHS (Oct. 1-Sept. 30) 1934-35
			EXPORTS.		
Exporting Countries:					
Grenada	220	187	8,545	8,836	—
Dominican Republ.	441	562	40,446	62,620	—
Brazil	...	...	1) 236,779	1) 190,672	—
Ecuador	2,205	2,963	45,228	41,557	—
Trinidad	1,102	1,709	27,765	45,748	—
Venezuela	2,205	2,026	29,198	28,464	—
Ceylon	478	573	6,102	7,893	—
Java and Madura	492	300	3,995	3,283	—
Cameroon (Fr. m t.)	3,309	1,521	52,927	48,956	—
Ivory Coast	2,286	3,457	108,816	97,575	—
Gold Coast	31,795	20,591	639,440	541,032	—
Nigeria and Cameroon (Brit. m. t)	4,409	3,655	201,931	184,186	—
Saint Thomas and Prince Is.	1,717	1,091	31,780	22,073	—
Togoland (Fr m. t)	963	666	21,182	19,663	—
Importing Countries:					
Germany	0	0	7	88	—
Belgium	49	0	154	176	—
France	0	0	9	2	—
Gr. Brit. and N Irel	1,257	937	8,494	15,499	—
Netherlands	600	644	5,181	4,643	—
Australia	22	0	104	408	—
Totals	**53,550**	**40,882**	**1,468,083**	**1,323,374**	—
			IMPORTS.		
Importing Countries					
Germany	15,084	14,791	172,395	165,896	—
Austria	1,151	1,140	12,125	12,487	—
Belgium	3,902	2,835	25,091	20,651	—
Bulgaria	53	15	1,559	805	—
Denmark	238	1,043	9,914	8,547	—
Spain	—	—	—	—	—
Estonia	35	104	844	756	—
Irish Free State	132	181	3,349	2,820	—
Finland	44	24	304	256	—
France	8,845	7,408	126,568	90,974	—
Gr Brit. and N. Irel.	5,009	6,766	276,443	196,128	—
Greece	...	..	1) 3,340	1) 2,635	—
Hungary	902	1,023	9,961	8,638	—
Italy	—	—	—	—	—
Latvia	95	90	1,204	1,235	—
Lithuania	53	42	1,047	758	—
Norway	798	216	5,514	6,731	—
Netherlands	11,696	9,211	146,555	133,982	—
Poland	1,038	882	14,035	15,845	—
Portugal	46	97	1,091	1,124	—
Sweden	1,135	549	12,178	12,103	—
Switzerland	397	608	17,183	16,052	—
Czechoslovakia	1,821	2,619	27,055	23,199	—
Yugoslavia	22	157	1,845	1,867	—
Canada	2,765	1,259	27,847	25,790	—
United States	51,108	28,195	580,159	566,112	—
Japan	...	...	1) 2,800	1) 3,142	—
Australia	90	421	12,403	14,500	—
New Zealand	...	...	1) 3,223	1) 3,303	—
Totals	**106,459**	**79,676**	**1,496,032**	**1,336,336**	—

Total Wheat and Flour *)

(Thousand centals).

COUNTRIES	SEPTEMBER 1936	SEPTEMBER 1935	TWO MONTHS (Aug 1-Sept. 30) 1936	TWO MONTHS (Aug 1-Sept. 30) 1935	TWELVE MONTHS (August 1-July 31) 1935-36
Exporting Countries:			*a)* NET EXPORTS		
Germany	2)	117	2)	2)	130
Bulgaria	414	185	1,023	185	683
Estonia	0	20	0	44	0
Hungary	2,198	1,409	4,120	1,667	9,828
Latvia	0	161	0	483	926
Lithuania	0	7	0	13	1,274
Poland	474	185	1,131	397	4,048
Portugal	2)	2)	2)	2)	2,161
Romania	.	..	1) 3,025	1) 309	3,521
Sweden	75	302	434	425	1,133
Czechoslovakia	20	2)	20	2)	2)
Yugoslavia	2,026	9	3,181	18	467
U. S. S. R.	209	4,200	353	6,621	17,223
Canada	13,420	11,389	27,097	25,375	152,053
Argentina	2,557	6,272	4,839	12,822	41,674
Chile	...	...	1) 0	1) 35	1,347
China	170	2)	351	2)	2)
India	902	101	1,129	154	664
Japan	.	...	2)	1) 60	2)
Syria and Lebanon	115	2)	154	2)	234
Algeria	...	.	1) 522	1) 412	5,875
French Morocco	2)	538	2	778	2,926
Tunis	2)	487	2)	1,135	2,743
Australia	4,500	4,522	7,359	7,507	60,133
Totals	**27,080**	**29,904**	**54,740**	**58,440**	**309,043**
Importing Countries.			*b)* NET IMPORTS		
Germany	35	3)	95	68	3)
Austria	765	267	1,224	472	4,189
Belgium	2,901	2,348	5,265	4,330	23,391
Denmark	366	331	639	747	5,379
Spain	—	—	—	—	—
Irish Free State	315	412	955	1,265	8,971
Finland	165	225	432	419	2,535
France	331	705	346	977	4,786
Gr Brit and N.Irel.	9,103	8,647	17,977	17,108	122,835
Greece		..	1) 922	1) 1,089	8,852
Italy	—	—	—	—	—
Norway	154	267	463	589	4,555
Netherlands	941	1,307	1,861	2,485	12,961
Portugal	7	20	22	68	3)
Switzerland	4) 930	4) 1,230	4) 1,660	4) 1,922	4) 10,000
Czechoslovakia	3)	955	3)	1,124	1,314
Total Europe	*16,013*	*16,714*	*31,861*	*32,663*	*209,768*
United States	2,099	1,874	5,624	3,336	22,767
Ceylon	44	57	101	121	549
China	3)	529	3)	1,369	4,667
Indo-China	60	35	121	79	520
Japan	...	...	1) 295	3)	3,241
Java and Madura	..	.	1) 95	1) 104	1,709
Syria and Lebanon	3)	11	3)	15	3)
Egypt	...	...	1) 2	1) 7	104
French Morocco	2	3)	3)	3)	3)
Tunis	15	3)	37	3)	3)
Union of S. Africa.	...	...	1) 0	1) 4	40
New Zealand.	..	...	1) 46	1) 24	556
Totals	**18,233**	**19,220**	**38,182**	**37,722**	**243,921**

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1.333,333 centals of grain.
a) Excess of exports over imports. — *b)* Excess of imports over exports.
1) Data up to 31 August . — 2) See Net Imports. — 3) See Net Exports. — 4) Wheat only.

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE

Statistics received too late for inclusion in the tables and statistics for October already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1936	EXPORTS 1935	IMPORTS 1936	IMPORTS 1935
CHILE		Sept.	Sept.	Sept.	Sept.
Wheat	1000 centals	0	29	0	0
Wheat flour	» »	0	13	0	0
Barley	» »	190	37	—	—
Oats	» »	68	97	0	0
Rice	» »	—	—	20	18
Wool	1000 lb.	278	203	95	20
Coffee	» »	—	—	534	800
Tea	» »	—	—	448	348
FINLAND		Oct.	Oct	Oct.	Oct
Wheat	1000 centals	0	0	88	137
Rye	» »	0	0	60	93
Wheat flour	» »	0	0	26	66
Oats	» »	0	0	2	53
Maize	» »	0	0	64	187
Linseed	» »	0	0	4	9
Butter	1000 lb.	2,617	1,817	0	0
Cheese	» »	1,087	1,153	0	0
Cotton	1000 centals	0	0	26	29
Wool	1000 lb.	0	2	730	564
Coffee	» »	—	—	4,440	4,085
Tea	» »	—	—	24	22
FRANCE					
Wheat	1000 centals	42	236	498	1,759
Rye	» »	0	0	4	11
Wheat flour	» »	229	322	117	152
Barley	» »	0	0	937	467
Oats	» »	0	0	251	31
Maize	» »	0	2	2,280	1,133
Rice	» »	24	11	2,143	500
Linseed	» »	0	0	467	553
Butter	1000 lb	1,241	1,310	141	121
Cheese	» »	2,019	2,125	2,745	2,815
Cotton	1000 centals	29	40	642	410
Wool	1000 lb.	5,370	3,953	9,592	13,272
Coffee	» »	4	2	32,005	35,686
Tea	» »	2	2	293	289
Cacao	» »	0	0	6,074	9,983
GR. BRITAIN AND N. IRELAND					
Wheat	1000 centals	68	77	9,938	11,096
Wheat flour	» »	223	220	620	908
Barley	» »	0	0	3,245	3,860
Oats	» »	2	2	181	227
Maize	» »	112	148	8,772	7,092
Rice	» »	20	7	159	108
Linseed	» »	0	0	489	622
Butter	1000 lb.	983	644	87,074	80,066
Cheese	» »	573	602	28,120	30,658
Cotton	1000 centals	46	55	1,437	1,376
Wool	1000 lb.	24,961	28,742	51,176	40,279
Coffee	» »	1,387	2,194	1,757	816
Tea	» »	6,019	7,326	51,123	56,401
Cacao	» »	2,363	591	2,165	4,045

COUNTRIES PRODUCTS AND UNITS		EXPORTS 1936	EXPORTS 1935	IMPORTS 1936	IMPORTS 1935
HUNGARY		Oct.	Oct.	Oct.	Oct.
Wheat	1000 centals	1,336	935	0	0
Rye	» »	93	42	0	0
Wheat flour	» »	152	227	0	0
Barley	» »	35	13	0	26
Oats	» »	7	0	0	0
Maize	» »	9	0	77	692
Rice	» »	0	0	37	9
Linseed	» »	0	2	0	0
Butter	1000 lb.	1,429	847	0	0
Cheese	» »	37	9	0	0
Cotton	1000 centals	0	0	49	37
Wool	1000 lb.	141	26	53	73
Coffee	» »	—	—	589	335
Tea	» »	—	—	86	51
Cacao	» »	—	—	1,060	1,091
NORWAY					
Wheat	1000 centals	0	0	247	231
Rye	» »	0	0	276	351
Wheat flour	» »	0	0	146	115
Barley	» »	0	0	40	86
Oats	» »	0	0	0	0
Maize	» »	0	0	260	362
Rice	» »	0	0	4	9
Linseed	» »	0	0	15	42
Butter	1000 lb.	0	0	0	0
Cheese	» »	298	333	29	24
Cotton	1000 centals	0	0	4	7
Wool	1000 lb	163	86	240	302
Coffee	» »	—	—	2,652	3,001
Tea	» »	—	—	31	44
Cacao	» »	—	—	849	481
NETHERLANDS					
Wheat	1000 centals	18	2	761	1,250
Rye	» »	265	15	55	35
Wheat flour	» »	0	0	99	108
Barley	» »	132	40	551	703
Oats	» »	90	0	7	7
Maize	» »	0	0	1,594	1,676
Rice	» »	231	209	364	320
Linseed	» »	7	2	273	822
Butter	1000 lb.	10,933	8,089	0	0
Cheese	» »	11,413	11,235	0	2
Cotton	1000 centals	2	0	106	84
Wool a)	1000 lb.	353	172	439	273
Wool b)	» »	82	130	613	710
Coffee	» »	68	1,085	1,587	11,237
Tea	» »	0	0	2,632	5,970
Cacao	» »	1,138	511	8,900	10,734
SWITZERLAND (*see over*)					
Wheat	1000 centals	0	2	968	944
Rye	» »	0	0	11	29
Barley	» »	0	0	278	454
Oats	» »	0	0	335	602
Maize	» »	0	0	174	344
Rice	» »	0	0	66	57

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
SWITZERLAND (*cont*)		Oct	Oct	Oct	Oct
Butter	1000 lb	0	0	77	9
Cheese	» »	2,597	3,397	280	377
Cotton	1000 centals	0	0	53	49
Wool	1000 lb	4	15	1,016	842
Coffee	» »	2	0	1,124	3,371
Tea	» »	—	—	148	174
Cacao	» »	—	—	635	758
CZECHOSLOVAKIA					
Wheat	1000 centals	0	0	0	79
Rye	» »	0	0	2	2
Wheat flour	» »	0	0	2	0
Barley	» »	384	168	0	0
Oats	» »	97	22	0	0
Maize	» »	0	0	51	306
Rice	» »	0	0	73	115
Linseed	» »	0	0	42	44
Butter	1000 lb	44	0	11	218
Cheese	» »	57	317	185	174
Cotton	1000 centals	4	4	185	172
Wool	1000 lb	13	40	2 800	2 582
Coffee	» »	—	—	2 388	1 956
Tea	» »	—	—	216	137
Cacao	» »	—	—	2 822	2 928
ARGENTINA					
Wheat	1000 centals	3 543	4 471	—	—
Rye	»	514	172	—	—
Wheat flour	» »	141	207	—	—
Barley	» »	443	317	—	—
Oats	» »	386	229	—	—
Maize	» »	20 781	15 152	—	—
Linseed	» »	2 959	2 595	—	—

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
ARGENTINA (*cont*)		Oct	Oct	Oct	Oct
Butter	1000 lb	553	95	—	—
Cotton	1000 centals	84	57	—	—
Wool a)	1000 lb	5,304	4,240	—	—
Wool b)	» »	2 297	3,975	—	—
CANADA					
Wheat	1000 centals	16 151	17,353	40	0
Rye	» »	201	4	0	0
Wheat flour	» »	911	983	15	9
Barley	» »	1,971	364	0	0
Oats	»	276	472	0	0
Rice	» »	11	0	2,260	597
Maize	»	4	0	33	15
Linseed	» »	46	0	31	24
Butter	1000 lb	60	6 497	0	7
Cheese	» »	15 803	13 049	150	159
Cotton	1000 centals	—	—	165	108
Wool	1000 lb	798	1 343	1,151	1 325
Coffee	» »	13	20	2 557	2 917
Tea	»	—	—	3 913	6,327
Cacao	» »	—	—	3 340	1,521
BRAZIL					
Coffee	1000 lb	153 019	210 946	—	—
SIAM					
Rice	1000 centals	3 073	3 413	—	—
GOLD COAST					
Cacao	1000 lb	54 955	35 977	—	—

a) Wool, greasy — *b*) Wool scoured

STOCKS OF CEREALS

Total stocks of wheat in the United States 1).

LOCATION	First day of month				
	October 1936	July 1936	April 1936	October 1935	October 1934
	1,000 centals				
On farms	136,259	26,256	58,232	160,783	137,460
In interior mills and elevators	70,317	14,266	31,295	62,029	69,491
Commercial wheat in store	49,709	3) 13,897	31,167	47,822	72,045
In merchant mills and attached elevators 2)	63,492	25,327	39,546	66,775	69,357
In transit to merchant mills and bought to arrive 2)	12,851	8,216	4,728	12,908	11,233
Stored for others by merchant mills 2) . . .	5,383	3,807	1,951	4,548	6,601
Total U. S. wheat as grain	*338,011*	3) *91,769*	*166,919*	*354,865*	*366,187*
Flour (in terms of grain) in merchant mills 2)	13,697	12,370	11,778	11,351	10,610
Total U. S. wheat . . .	*351,708*	*104,139*	*178,697*	*366,216*	*376,797*
Canadian wheat in store in bond in the U.S.	11,406	9,368	10,219	12,360	8,533
Wheat of other origin in store in bond in the U. S	0	0	0	22	0
TOTAL WHEAT IN THE U. S . . .	**363,114**	3) **113,507**	**188,916**	**378,598**	**385,330**

1) Incomplete data: wheat in transit on rail or water with other destination than to merchant mills and attached elevators and wheat flour in other positions than in these mills, etc, are not included. — 2) The figures of the Bureau of Census, partial quarterly census are raised to represent all mills. — 3) The amount of commercial old wheat stocks on 1 July 1936 was 12,388,000 centals; in consequence the "total U. S old wheat as grain" on the same date was 90,260,000 centals and the 'total old wheat in the U. S." **111,998,000** centals

Wheat and wheat-flour stocks held by commercial mills in the United States 1)

LOCATION	Last day of month				
	September 1936	June 1936	March 1936	September 1935	September 1934
	1,000 centals				
Wheat stocks the property of commercial millers					
Wheat in transit to merchant mills and bought to arrive	12,376	7,969	4,605	12,392	10,367
Wheat held by mills and mills-elevators attached to mills	61,142	24,567	38,518	64,104	64,017
Wheat in other positions 2)	18,595	5,049	8,535	16,979	22,158
Total . . .	*92,113*	*37,585*	*51,658*	*93,475*	*96,542*
Wheat-flour in milles and warehouses, and in transit, sold and unsold.	9,168	8,339	7,973	7,574	6,807
Wheat stored for others in mills and mill-elevators	5.183	3,693	1,900	4,366	6,093
GRAND TOTAL 3) . . .	**110,486**	**53,276**	**65,030**	**108,737**	**112,428**

1) Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills — 2) These stocks are included in the total quantities in country elevators or in the total quantities in publi terminal elevators and private terminal elevators not attached to mills. — 3) Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	November 1936	October 1936	September 1936	November 1935	November 1934
	Friday or Saturday nearest 1st of month				
	1 000 centals				
WHEAT					
Canadian in Canada	79 028	86 220	76 397	143 645	142 181
U. S. in Canada	0	0	0	0	629
U. S. in the United States	45 854	49 709	48 629	50 596	65 111
Canadian in the United States	13 369	11 406	10 985	19 230	10 546
Of other origin in the United States	0	0	0	11	21
Total	*138 251*	*147 335*	*136 011*	*213 482*	*218 488*
RYE					
Canadian in Canada	1 291	1 408	1 487	2 490	2 264
U. S. in Canada	0	0	0	0	0
U. S. in the United States	3 477	3 648	3 737	5 089	6 901
Canadian in the United States	323	295	314	0	339
Of other origin in the United States	57	58	0	48	30
Total	*5 148*	*5 409*	*5 538*	*7 627*	*9 534*
BARLEY					
Canadian in Canada	7 136	6 882	5 508	4 884	6 689
U. S. in Canada	0	0	0	0	0
U. S. in the United States	9 586	8 511	7 365	8 849	8 415
Canadian in the United States	1 089	583	322	54	0
Of other origin in the United States	0	0	0	0	0
Total	*17 811*	*15 976*	*13 195*	*13 787*	*15 104*
OATS					
Canadian in Canada	5 927	5 393	3 734	4 655	5 364
U. S. in Canada	0	34	51	0	52
U. S. in the United States	15 564	16 311	16 596	14 624	7 758
Canadian in the United States	2	2	0	50	85
Of other origin in the United States	0	0	0	0	79
Total	*21 493*	*21 740*	*20 381*	*19 329*	*13 338*
MAIZE					
U. S. in Canada	6	6	92	1	3 526
Of other origin in Canada	280	290	203	629	629
U. S. in the United States	2 395	2 422	2 541	1 154	32 750
Of other in the United States	211	127	0	172	0
Total	*2 892*	*2 845*	*2 836*	*1 956*	*36 905*

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	November 1936	October 1936	September 1936	November 1935	November 1934
	Saturday nearest 1st of month				
	1 000 centals				
Wheat (and flour in terms of grain)	20 371	17,362	14 232	17 184	20 170
Rye	634	283	274	245	274
Barley	3,004	2 848	2 684	2,280	2,352
Oats	774	333	278	515	1,213
Maize	23 981	19,445	14 482	17,486	13,003

AUTHORITY *Broomhall's Corn Trade News*

Stocks of cereals in commercial elevators and mills in Germany 1).

PRODUCTS	Last day of month				
	October 1936	September 1936	August 1936	October 1935	October 1934
	1,000 centals				
WHEAT:					
Grain	14,643	16,753	13,790	32,282	35,614
Flour for bread	1,814	1,775	1,967	2,670	2,789
TOTAL 2)	*17,163*	*19,218*	*16,522*	*35,990*	*39,488*
RYE:					
Grain	13,744	15,258	12,042	28,477	22,340
Flour for bread	1,133	1,184	1,041	1,693	2,328
TOTAL 2)	*15,411*	*17,000*	*13,572*	*30,966*	*25,764*
BARLEY	2.628	3,547	3,212	4,519	5,439
OATS	2,890	3,298	2,703	4,222	1,217

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470 59 centals of rye.

Grain and flour stocks at the ports of Great Britain and Ireland 1).

PRODUCTS	First day of month				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
WHEAT:					
Grain	3,624	2,856	4,056	3,120	7.584
Flour as grain	720	816	744	624	792
TOTAL	*4,344*	*3,672*	*4,800*	*3,744*	*8,376*
BARLEY	1,440	1,200	980	1,520	1,120
OATS	128	160	176	192	256
MAIZE	3,264	2,712	2,256	2,448	3,888

1) Imported cereals.

AUTHORITY: *Broomhall's Corn Trade News.*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

PRODUCTS AND LOCATION	Saturday nearest 1st of month 2)				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
WHEAT:					
Antwerp	1,243	951	583	1,546	2,650
Rotterdam	583	862	508	954	1,436
Amsterdam	13	17	23	12	29
RYE.					
Antwerp	54	82	54	27	160
Rotterdam	19	20	42	88	172
Amsterdam	0	0	0	1	0
BARLEY:					
Antwerp	452	230	43	316	391
Rotterdam	18	0	4	309	192
Amsterdam	6	0	0	2	13
OATS:					
Antwerp	15	22	11	15	93
Rotterdam	0	0	9	0	76
Amsterdam	25	27	30	25	28
MAIZE					
Antwerp	15	0	52	158	311
Rotterdam	4	7	15	138	551
Amsterdam	2	2	7	5	124

1) Imported cereals — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated

AUTHORITIES *Nederlandsche Silo, Elevator en Graanfactor Mij*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

LOCATION	Last day of month				
	October 1936	September 1936	August 1936	October 1935	October 1934
	1 000 centals				
In consuming establishments	6,850	4,142	3,670	5,245	5 543
In public storage and at compresses	39,214	33,244	21,182	41,432	45,656
TOTAL	*46,064*	*37,386*	*24,852*	*46,677*	*51,199*

Stocks of cotton at Bombay and at Alexandria.

PORTS	Thursday nearest 1st of month				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
Bombay 1)	2,428	2,776	2,760	1,532	2,436
Alexandria 2)	2,177	1,295	484	1,305	1,947

1) Stocks held by exporters, dealers and mills — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included

AUTHORITIES *East Indian Cotton Ass* and *Commission de la Bourse de Minet el Bassal*

Stocks of cotton in Europe.

Location, Description	Thursday or Friday nearest 1st of month				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
Great Britain					
American	1,251	1,121	1,123	880	1 306
Argentine, Brazilian, etc	918	971	841	106	1,039
Peruvian, etc	292	283	229	314	574
East Indian	304	308	323	119	280
Egyptian, Sudanese	715	787	863	712	1,181
W. Indian, W and E African, etc	161	148	156	65	286
Total	*3,641*	*3 618*	*3,535*	*2,196*	*4,666*
Bremen:					
American	429	363	442	492	1,404
Other	334	239	282	309	281
Total	*763*	*602*	*724*	*801*	*1 685*
Le Havre					
American	702	393	356	272	580
French colonies	28	27	26	15	30
Other	145	166	184	71	93
Total	*875*	*586*	*566*	*358*	*703*
Total Continent 1)					
American	1,261	897	1,037	*1 039*	2,371
Argentine, Brazilian, etc	387	331	393	*280*	131
East Indian	161	192	221	131	208
Egyptian .	94	93	109	130	116
W Indian, W and E African, etc	154	139	132	135	255
Total	*2,057*	*1 652*	*1,892*	*1 715*	*3,081*

1) Includes Bremen Le Havre and other Continental ports
Authorities *Liverpool Cotton Ass* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

DESCRIPTION	13 Nov. 1936	6 Nov. 1936	30 Oct 1936	23 Oct. 1936	AVERAGE Oct. 1936	Nov. 1935	Nov. 1934	Commercial Season 1) 1935-36	1934-35
Wheat.									
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengö p. quintal)	17.80	17.75	17.92	18.10	17.64	18.34	16.28	16.78	16.67
Braila· Good quality (lei p. quintal)	n. 480	n. 480	480	480	7) 471	455	n. q.	* 442	* 402
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	107 3/4	109	108 1/8	109 7/8	110 3/4	86 3/8	79 1/4	85	81 7/8
Chicago·No. 2 Hard Winter (cents p. 60 lb.)	122	122 1/2	120	120 1/2	120 5/8	n. 114	n. 106	109 3/4	104 3/4
Minneapolis: No. 1 Northern (cents p. 60 lb.)	135 1/8	135 3/4	137	137 7/8	137 3/4	122	110 3/8	119 1/8	110 7/8
New York· No 2 Hard Winter (cents p. 60 lb.)	133	131 3/4	130 3/8	131 5/8	131 7/8	127 7/8	114 3/4	124 1/4	113 3/8
Buenos Aires (*a*): Barletta, 80 kg. p. hectol. (paper pesos p. quintal)	10.80	10.60	10.95	11.30	11.37	8.15	6.30	9.53	6.86
Karachi White Karachi 2 % barley, 1 1/2 % impurities (rupees p 656 lb)	29-2-0	29- 8-0	29-15-0	30- 8-0	30- 4-2	28-8-10	21- 4-5	24-7-6	22-5-9
Berlin· Home grown (free at Brandenburg stations; Rm. p. quintal) 2).	20.00	20.00	19.80	19.80	19 80	20 00	20.00	20.53	20.29
Hamburg (c. i f.; Rm. p. quintal):									
No 1 Manitoba	11.58	11.80	11.98	12.07	11.94	9.87	8.94	9.51	8.95
Barusso (80 kg. p hl.)	10.27	10.35	10.66	10.79	10 70	7.96	6.16	8.74	6.50
Antwerp (francs p. quintal).									
Home-grown	123.00	125.00	125.00	125.00	122.20	92.80	62.80	100.90	69.10
No 1 Manitoba (Atlantic) (in bond)	136.50	136.00	140.50	144.00	139.70	112.80	75.05	110.80	86.10
Barusso (in bond)	123.00	125.00	128.00	133.00	128.70	95.30	50.90	103.10	60.90
Paris· Home-grown (delivery regional depots: 76 kg p hl.; frs. p. quintal) 5)	146.00	146.00	145.00	145.00	145 00	80.70	112.00	89.95	91.50
London (Mark Lane): Home-grown (sh. p. 504 lb on the farm)	38/-	38/6	39/6	40/-	39/1 1/4	25/10 3/4	21/9	27/5 1/4	22/4 1/2
Liverpool and London (c i.f., parcels, shipping current month; sh. p. 480 lb.)									
French (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	8) 23/5 1/2	19/4 1/4	* 25/-	* 19/8
South Russian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	29/2 1/2	n. q.	* 29/-	n. q.
No. 1 Northern Manitoba (Atlantic)	40/4 1/2	41/1 1/2	41/2 1/4	41/9	41/6 1/4	33/3 1/2	30/7 3/4	32/9	31/7 3/4
No 1 Northern Manitoba (Pacific)	41/6	n. 42/-	41/9	41/10 1/2	41/7 1/2	32/10 1/4	30/0 1/2	32/5 1/4	31/2 3/4
No. 3 Northern Manitoba (Pacific)	39/7 1/2	40/-	39/9	40/7 1/2	40/0 1/2	30/2	27/3 1/2	30/5 1/4	28/5 1/4
White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.
Rosafé (afloat) 4)	9) 35/3	9) 35/1 1/2	9) 35/3	9) 35/9	9) 35/6 1/4	9) 26/10	20/7 1/2	* 28/9	22/3 1/2
White Karachi; choice	38/7 1/2	39/1 1/2	40/-	40/7 1/2	40/3	n. q.	n. q.	* 31/7 1/2	* 29/3
West Australian (cargoes)	8) 38/7 1/2	8) 41/6	41/9	41/7 1/2	41/5 1/2	8) 29/3	10) 24/9 1/2	* 30/2 1/2	26/3 3/4
New South Wales (cargoes)	8) 38/7 1/2	8) 40/3	8) 40/-	8) 40/9	40/7 3/4	8)*28/8 1/4	10) 22/9 1/2	* 29/9	* 25/7
Milan (*b*): Home-grown, soft, "Buono mercantile" 76-78 kg. p. hl. (lire p. q.) 5).	123.00	123.00	123.00	123.00	123.00	111.30	89/35	114.20	95.80
Genoa. Sicilian Durum (c i.f ; lire p. q.) 5).	138.00	138.00	138.00	138.00	138.00	n. q.	108.90	n. q.	* 113.05
Genoa (c.i.f ; U. S. $ p quintal):									
No. 2 Manitoba (Pacific)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	3.20	n. q.	* 3.38
No. 2 Canadian Durum 1	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 4.14	n. q.	* 4.09
Bahia Blanca, 79 kg.p.hl (sh.p.1000 kg.)	n. q.	n. q.	n. q.	n. q.	n. q.	n q.	103/10	n. q	*111/-
Rye.									
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 6).	16.30	16.30	16.10	16.10	16.10	16.30	16.00	16.68	16.29
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg. p. hl.	7.41	7.42	7.67	7.68	7.55	5.03	5.79	5.27	5.76
Budapest: Pest rye (pengö p. quintal).	14.35	14.45	14.45	14.25	13.85	16.11	12.10	14.45	12.08
Warsaw: Good quality (zloty p. quint.) 6)	18.12	18.12	18.37	18.62	18.67	13.37	14.25	13.25	14.82
Winnipeg: No. 2 (cents p. 56 lb.)	74	70 3/8	68 1/2	69 1/2	69 3/4	41 3/8	55 1/2	43 1/4	52 7/8
Minneapolis: No. 2 (cents p. 56 lb.)	89 1/8	86 3/4	84 1/2	84 3/4	84 7/8	49 1/4	75 1/4	53 1/2	67 7/8
Groningen (*c*): Home-grown (fl. p. quintal)	7.75	7.75	7.77	7.92	8.00	6.65	7.20	* 7.08	7.35

---

* Indicates that the product was not quoted during part of the period under review — n q. = *not quoted*. — n. = *nominal* — *a*) Thursday prices. — *b*) Saturday prices. — *c*) Prices on preceding Tuesday.

1) August-July. — 2) From 16 Aug. 1934, for wheat, and July 1934, for rye, fixed producers' prices for the *price region* of Berlin city. See *Govt. Measures*, No. 2, p. 57, and this *Crop Report*, p. 609. — 3) Until 25 Dec. 1934, minimum prices on the farm increased by transport costs; Jan.-Aug. 1935, spot quotations in the free market Sept. 1935-Aug. 1936, prices in the regulated market, delivery current month; subsequently, fixed producers' prices (see note on p. 691). — 4) Aug.-Dec. 1934, 64 lb. p. bushel, then 63 1/2 lb. — 5) See note p. 609 *Crop Report*, August 1936. — 6) From Oct. 1936, prices for export rye. — 7) 16 Oct.: 470. — 8) New crop, shipping Dec. — 9) New crop, shipping Jan.-Feb. — 10) Afloat.

Description	13 Nov. 1936	6 Nov. 1936	30 Oct. 1936	23 Oct. 1936	Average Oct. 1936	Average Nov. 1935	Average Nov. 1934	Commercial Season 1) 1935-36	Commercial Season 1) 1934-35
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	26.00	26.00	27.00	27.00	26.20	16.15	20.25	* 15.97	19.60
Braila: Average quality (lei p. quintal)	335	325	315	305	6) 291	237	253	* 237	* 244
Prague: Malting, av. qual. (crs p quintal) 2)	129.50	129.50	128.00	128.00	128.00	129.50	129.50	* 131.70	131.70
Winnipeg: No. 4 Western (cents p. 48 lb.)	59 3/4	58 3/4	54	56 1/4	58	30 7/8	48 7/8	34 3/4	45 5/8
Chicago: Feeding (on sample; cents p. 48 lb.)	77	73	74	77	78 1/4	43 5/8	n. 83	45 1/4	72 1/2
Minneapolis: No. 2 Feeding (c. p. 48 lb.) 3)	86 1/2	83 1/2	81 1/2	80 1/2	81 1/2	38 5/8	75 7/8	39 1/8	67 1/2
Berlin: Home grown fodder (free at Brandenburg stations; Rm. p. quint.) 4)	16.60	16.60	16.40	16.40	16.40	16.60	15.90	17.08	16.16
Antwerp: Danubian (in bond; francs p q.)	102.00	102.00	104.50	106.00	102.00	70.50	69.00	74.10	69.45
London (Mark Lane): English malting, best quality (sh. p 448 lb., on farm)	42/-	42/-	42/-	41/-	41/2 1/2	42,4 3/4	41/6	38/3	38/-
Liverpool and London (c.i.f., parcels; shipping current month, sh. p. 400 lb.):									
Danubian, 3 % impurities	22/-	n. q.	22/3	22/6	22/1 3/4	n. q.	n. q.	* 15/3	* 19/2 1/4
Russian (Azoff, Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	14/4 3/4	n. q.	* 14/10	n. q.
Canadian No. 3 Western	26/6	25/10 1/2	25/9	25/4 1/2	25/11 3/4	16/2 3/4	22/7 1/2	18/0 1/2	21/10 1/2
Californian malting (sh p. 448 lb.)	7) 42/-	7) 41/6	40/9	40/9	8) 40/9	23/10 3/4	n. q.	24/8 3/4	* 31/6
Plata (64-65 kg. p. hl.)	7) 21/4 1/2	7) 21/-	7) 21/9	7) 22/-	7) 21/9 1/2	14/11 1/2	7) 18,8	15/11 1/2	18/4
Persian (Iraquian)	9) 21/6	9) 20/10 1/2	9) 21/4 1/2	9) 21/9	9) 21/6	7) 14/7 1/4	20/4 1/2	15/4 1/4	18/6
Groningen a): Home-grown, winter (fl. p. q.)	7.47	7.45	7.52	7.62	7.53	4.65	5.60	4.91	5.30
Oats.									
Braila: Good quality (lei p quintal)	n. q.	n. q.	n q.	n. q.	n q.	303	n. q.	* 294	n. q
Winnipeg: No. 2 White (cents per 34 lb.)	46 1/2	44 3/4	42 7/8	43 5/8	44 1/4	31 3/4	44 1/2	34 3/4	42 3/4
Chicago: No. 2 White (cents per 32 lb)	45 3/4	46 1/2	43 1/2	44 3/4	44 3/8	31	55 7/8	32 1/4	50 7/8
Buenos Aires b). Current quality (paper pesos p. quintal)	5.40	5 50	5.70	5.80	5.94	n. q	5.04	* 6.38	5.39
Berlin: Home-grown (free at Brandenburg stations; Rm p. quint.) 4)	16.20	16.20	16.00	16.00	16.00	16.20	16.10	16.79	16.39
Paris: Home-grown, black and other (delivery regional depots, frs p. quintal)	120.85	121.00	117.00	n. q.	* 114.35	56 75	53.05	66.40	48.50
London (Mark Lane). Home-grown white (sh. p. 356 lb., on farm)	21/6	21/-	20/-	20/-	19 9 1/2	18/6	20,3 1/2	18/7 1/2	20/10
Liverpool and London (c i.f. parcels; shipping current month, sh p 320 lb.):									
Canadian, No. 2 Western (Pacific) 5)	22/10 1/2	22/7 1/2	22/-	22/6	22'4	18/1 1/4	20/8 1/2	18/7 1/2	20/10 1/2
Plata (f. a. q)	7) 14/4 1/2	7) 14/1 1/2	7) 14/-	7) 14,3	14/10	7) 13/2 3/4	7) 12/3 1/4	14/5	13/0 1/2
Milan (c) (lire p quintal):									
Home-grown	94.50	94.50	94.50	94.50	94.50	98.00	57.50	* 97.10	61.25
Foreign	95.00	95.00	95.00	95.00	95.00	93.50	58 75	92.60	60.45
Maize.									
Braila: Average quality (lei p quintal)	220	205	285	n 290	10) 280	215	182	238 1/2	* 220
Chicago No. 3 Yellow (cents p. 56 lb.)	112	108	107 3/4	108	108	62 7/8	86	72 3/8	78 1/8
Buenos Aires (b) Yellow Plata (paper pesos p. quintal)	5.42	5 30	5 72	5.90	5.91	4.40	6.06	4.51	5.72
Antwerp (in bond; francs p quintal):									
Yellow Plata	72.00	72.50	76.25	79.25	78.65	53.70	51.70	56.25	53.70
Cinquantino (Argentine " Cuarentino ")	82.00	84.00	87.00	91.00	90.45	57.90	58.70	60.45	58.25
Liverpool and London (c.i f., parcels; shipping current month; sh. p. 480 lb.):									
Danubian	23/-	n. q.	23/7 1/2	22/7 1/2	* 23/5 1/2	* 16/3	20/5 3/4	* 16/11	* 21/-
Yellow Plata	20/6	20/3	21/7 1/2	22/1 1/2	22/2	15/6 1/4	20/5 3/4	16/0 1/2	19/8 1/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	* 16/5 1/4	22/3 1/4	* 17/-	21/4 1/2
Milan (c): « Alto Milanese » (lire p quint.)	11) 82.00	11) 82.00	11) 82 00	11) 82.00	83.20	83.90	50.75	81.75	58.50

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague (From August 1935, barley of good quality, not less than 68 kg. per hl.) see note p. 609. — 3) From 1 August 1935, only delivered barley quoted. — 4) From 16 July 1934 for fodder barley; from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin See *Govt. Measures*, No. 2, p. 57, and, this *Crop Report* p. 609. — 5) Aug.-Dec. 1934 and from May 1935, Atlantic. — 6) 16 Oct.: 290. — 7) New crop, shipping Jan.-Feb. — 8) Revised prices: 11 Sept.: 39/6; Sept. average: 39/3. — 9) Shipping Dec.-Jan. — 10) 16 Oct.: n. 275. — 11) Maximum fixed price, f. o. r.

DESCRIPTION	13 Nov. 1936	6 Nov. 1936	30 Oct. 1936	23 Oct. 1936	Average				
					Oct. 1936	Nov. 1935	Nov. 1934	Commercial Season 1)	
								1935	1934
Rice (milled).									
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	56.50	52.90	56.60	46.95
Milan (*b*) (lire p. quintal):									
Vialone, oiled	3) 160.00	3) 160.00	3) 160.00	3) 160.00	166.00	192.10	149.50	159.20	177.10
Maratelli, oiled	3) 140.00	3) 140.00	3) 140.00	3) 140.00	144.80	161.10	127.50	136.60	138.05
Originario, white	119.00	119.00	119.00	119.00	122.30	132.60	99.50	121.75	102.80
Rangoon (rupees and annas p. 7500 lb.):									
No. 2 Burma	247-8	242-8	235-0	237-8	239-8	270- 0	229-0	253-8	201- 2
Small mills specials	227-8	217-8	215-0	217-8	219-0	242- 2	189-0	227-4	174-12
Big mills specials	221-0	212-8	210-0	215-0	215-0	235-10	185-0	219-9	167-13
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white, 25 % brokens	...	...	6.21	5.88	4) 5.81	4.58	3.47	4.18	3.25
No. 2 Japan, 40 % brokens	...	...	6.05	5.63	5) 5 59	4.28	3.29	3.96	3.05
Marseilles (*a*): No. 1 Saigon (c. i. f ; frs. p. quintal)	84.00	77.00	79.00	74.00	72 70	67.25	47.40	54.80	45.95
London (*a*) (c. i. f.; shillings p. cwt.):									
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	12/3	6) 11/-	* 12/7	* 10/9
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	12/7½	* 14/0½	11/10¼
American Blue Rose, extra fancy	17/7½	17/7½	17/7½	17/7½	17/11¾	16/8¼	16/10½	* 15/5¾	17/3½
No. 2 Rangoon or Bassein (Burma)	7/10½	7/10½	7/9	7/9	7/9½	7/4¾	6/11½	7/8	6/7¾
No. 1 Saigon	8/3	8/3	8/3	7/10½	7/11½	7/8¼	7/-	7/5¼	6/3¼
Siam Super, white	8/10½	9/4½	9/-	9/1½	9/1¼	8/5½	7/8½	9/2¾	7/5
Tokyo. Chumai (brown Japanese, average quality, yen p. koku)	29.70	29.80	30.00	29.50	29.68	30 16	30.00	29.87	26.09
Linseed.									
Buenos Aires (*a*) Current quality (paper pesos p. quintal)	14.00	14.00	14.00	14.00	14 04	12.59	11.61	12.28	12.74
Bombay: Bold (rupees p cwt)	7- 2-0	7-1-0	7-1-0	n. q.	7)* 7-1-0	6-12-7	6-1- 8	6-10-8	6-7-8
Antwerp. Plata (in bond, frs. p. quint.)	159.00	159.50	163.00	162.50	163.80	144.00	98.00	127.55	107.60
London (c i. f ; £ p long ton.).									
Plata (delivery Hull)	11- 5-0	11-0-0	11- 5-0	11- 6-3	11- 7- 6	9-19-6	9- 7-6	9-13-2	10- 0-8
Bombay Bold	13-13-9	13-6-3	13- 7-6	13- 8-9	13- 9- 0	12-14-3	11- 4-6	12- 5- 5	11-17-0
Duluth: No. 1 Northern (futures market quotations, cents p. 56 lb.)	8) 204¾	8) 203¾	8) 203½	8) 205	8) 203⅛	8) 172	8) 180⅜	172¼	186⅛
Cottonseed.								1935-36	1934-35
Alexandria (piastres p ardeb):									
Upper Egypt	74.4	69.4	69.0	69.2	68 4	61.4	56.2	69.7	62.0
Sakellaridis	68.7	63.6	63.9	64.2	64.1	57.3	52.3	* 64.0	57.7
London: Sakellaridis (c.i f , delivery Hull; £ p long ton)	n. 7- 2-6	n. 6-13-9	n. 6-11-3	n. 6-13-9	n. 6-12-6	n. 5-17-7	5- 7-9	n. 6-13-7	5-18-7
Cotton.									
New Orleans Middling (cents p lb.)	12.19	12.30	12.04	12.15	12.27	11 97	12.59	11.64	12.47
New York: Middling (cents p. lb.)	12.15	12.27	12.06	12.18	12.30	11.99	12 54	11.74	12.46
Bombay (rupees p 784 lb.):									
Broach, f g. (futures-market quotations)	9) 215-12	9) 219-0	9) 218-12	9) 220-12	9) 220-0	9) 222-10	9) 215-4	210- 4	230-4
Broach, f. g (spot)	n. q.	205-0	201- 0	n. q.	n. q.	237- 8	214-8	* 220-12	233-4
Oomra, fine (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	215-12	190-8	198-12	208-8
Alexandria (talaris p. kantar):									
Sakellaridis, f g. f.	19.55	19.25	19 60	19.60	18.90	17.43	15.60	16.11	15.20
Ashmuni-Zagora, f g. f. 2)	13.00	13.20	13.10	13.45	13.27	13.87	13.17	13.61	13.34
Bremen: Middling (U. S. cents p. lb.)	14.18	14.42	14.19	14.30	14.41	14.39	14.51	13.88	14.38
M. g. Broach, f. g. (pence p. lb.)	n. 5.60	n. 5.70	n. 5.65	n. 5.65	n. 5.65	n. 6.62	n. 5.54	n. 5.86	n. 6.04
Le Havre: Middling (Gulf; frs p. 50 kg.)	354.50	359.00	350.00	352.00	347.10	* 252.75	253.20	240.00	250.75
Liverpool (pence per lb.):									
Middling, fair	n. 7.88	n. 8.07	n. 7.96	n. 8.06	n. 8.04	n. 7.62	n. 7.92	n. 7.58	n. 7.95
Middling	6.71	6.92	6.81	6.96	6.93	6.61	6.87	6.53	6.94
São Paulo, g. f.	6.83	7.02	6.93	7.01	6.98	6.95	6.81	6.81	6.99
Broach, good staple, f. g.	n. 5.39	n. 5.57	n. 5.46	n. 5.51	n. 5.59	5.91	5.29	5.43	5.61
C. P. Oomra, superfine	5.55	5.73	5.62	5.67	5.75	6 04	5.21	5.61	5.73
Egyptian Sakellaridis, f. g. f.	11 72	11.36	11.42	11.08	10.92	9.76	8.78	9.18	8.52
Upper Egyptian, f. g. f.	7.35	7.41	7.25	7.54	7.52	7.45	7.39	7.49	7.55

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — *n.* = *nominal*. — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) From August 1935, Ashmuni, f. g. f. quality only. — 3) Producers' prices, f. o. r. from mid-October. — 4) 16 and 9 Oct., 5.73; 2 Oct., 5.52 — 5) 16 and 9 Oct., 5.49; 2 Oct., 5.27. — 6) New crop. — 7) 16 Oct., 7-2-0. — 8) December futures. — 9) April-May futures.

DESCRIPTION	13 Nov. 1936	6 Nov. 1936	30 Oct. 1936	23 Oct. 1936	AVERAGE				
					Oct. 1936	Nov. 1935	Nov. 1934	Commercial Season	
								1935	1934
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English, No. 1, lean sizable	89/-	89/-	89/-	92/-	91/7	83/1	87/9	89/11	91/2
Danish, No. 1, sizable	90/-	90/-	90/-	94/-	96/10	85/7	85/9	88/6	87/11
Irish, No. 1, sizable	88/6	88/6	88/6	92/-	92/-	82/4	86/1	88/8	90/5
Lithuanian, No. 1, sizable	83/-	82/-	81/-	84/-	86/5	78/5	82/-	82/1	82/-
Dutch, No. 1, sizable	86/-	86/-	86/-	90/-	92/10	81/2	84/-	85/4	84/-
Polish, No. 1, sizable	83/-	83/-	81/-	84/-	86/5	76/5	81/-	80/-	80/11
Swedish, No. 1, sizable	86/-	86/-	86/-	90/-	92/10	81/2	83/2	85/2	84/4
Canadian, No. 1, sizable	80/-	80/-	80/-	84/-	86/2	75/-	80/5	79/3	80/3
Butter.									
Copenhagen (*b*): Danish (crs. p. quint.).	222.00	218.00	207.00	210.00	215.00	220.50	209.20	192.30	160.75
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p. kg.) 1).	73	67	62	61	62 3/4	58 3/4	46 1/2	48 7/8	44 3/8
Antwerp (frs. p. kg.)	21.00	20.15	17.90	17.55	18.15	19.15	18.00	17.90	18.00
Germany (*c*)(fixed prices; Rm.p. 50 kg.) 2):									
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130 50	130.00	129.04
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	122.50	123.00	120.87
London (*d*): English creamery, finest quality (shillings p. cwt.)	133/-	128/4	128/4	129/6	130/-	130/8	109/8	119/6	109/6
London, Provision Exchange (*a*) (shillings, p. cwt.):									
Danish creamery, unsalted.	125/-	125/-	119/-	120/-	122/4	124/5	120/5	112/9	98/8
Estonian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. 74/-	* 81/11	* 67/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	71/3	* 86/1	* 69/3
Dutch creamery, unsalted	103/-	98/-	91/6	89/6	92/4	108/2	87/5	93/4	80/4
Argentine, finest, unsalted	n. q.	n. q.	n. q.	n. q.	* 94/-	n. q.	n. q.	* 82/10	* 68/3
Siberian, salted	101/-	99/-	91/-	88/6	91/8	* 99/3	70/4	* 90/7	* 66/-
Australian, finest, salted.	108/6	107/6	98/6	96/6	7) 99/5	101/2	73/-	89/7	70/2
New Zealand, finest, salted	109/6	108/6	99/6	96/6	99/2	101/11	74/-	91/11	72/7
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1934 3) 4)	800.00	800.00	800.00	800.00	820.00	739.00	749.00	775.45	724.30
Parmigiano-Reggiano, 1st quality, production 1935 3) 5)	850.00	850.00	850.00	850.00	824.00	690.00	621.00	734.25	614.60
Green Gorgonzola, mature, choice.	650.00	650.00	650.00	650.00	650.00	544.00	416.00	508.90	412.60
Rome: Roman Pecorino, choice (lire p.q) 6)	975.00	975.00	975.00	975.00	8) 975.00	1,162.50	681.00	865.50	658.65
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg.)	16.25	16.25	16.00	16.50	17.55	16.90	17.00	14.84	18.64
Gouda: Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p. 50 kg.)	23.00	23.00	23.50	23.50	23.80	24.70	23.40	19.75	22.52
Kempten (*c*) (Rm. p. 50 kg.):									
Soft cheese, green 20 % butterfat.	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	23.25
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	73.00	77.00	71.50
London, Provision Exchange (*a*) (shilling, p. cwt.):									
English Cheddar, finest farmers	85/-	84/-	84/-	84/-	83/-	73/-	85/-	* 77/8	* 83/5
English Cheshire, Nat. Mark Selected.	87/6	87/6	84/-	85/2	83/4	90/6	87/6	80/5	83/4
Italian Gorgonzola (*d*).	105/-	107/4	107/4	105/-	*) 106/2	109/8	84/-	* 102/2	82/9
Dutch Edam, 40 + (*d*)	50/-	49/-	49/-	51/-	51/-	53/10	48/-	44/4	54/5
Canadian, finest white	73/-	71/6	70/6	70/-	69/6	57/10	54/6	60/3	54/-
New Zealand, finest white	73/9	72/3	70/9	70/9	70/-	52/2	51/4	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the week.

1) Home prices are increased by a consumption tax which was 0.75 from 27 Sept. to 17 Oct. 1936, and 0.80 from 18 Oct. onwards. — 2) See note page 306 of the *Crop Report* April 1934. — 3) Prices of 1934 cheese are compared, for the preceding years, with those of cheese made in 1933 and 1932, respectively; prices of 1935 cheese with those of cheese made in 1934 and 1933 The yearly averages refer to the periods from Sept. to August. — 4) On and after mid-Oct., prices per choice quality, f. o. r., producers' stations. — 5) On and after mid-October, prices for choicest quality, f. o. r., packing included. — 6) On and after 27 September 1935, export prices. — 7) Revised quotations: 16 Oct.: 96/6; 9 Oct.: 101/-; 2 Oct.: 104/6. — 8) 4-17 Oct.: 975.00.

Description	13 Nov 1936	6 Nov 1936	30 Oct 1936	23 Oct 1936	Average Oct 1936	Average Nov 1935	Average Nov 1934	Average Commercial Season 1) 1935	Average Commercial Season 1) 1934
Eggs.									
Antwerp auction Belgian, average qual (frs p 100)	75 00	83 00	82 00	78 00	75 40	73 50	67 20	48 35	42.80
Denmark (*a*) Danish for export (crs per quintal)	166 00	166 00	166 00	166 00	150.80	176 00	192 50	106 75	103.60
Roermond, auction Dutch 57/58 gr each white (fl p 100)									
Fixed price for export into Germany						4 80	5 58	3 75	3.96
Price for other destinations						4 78	4 90	2 97	3.34
Warsaw (*b*) Polish average weight 50 gr each various colours (zloty p 1440 including box)	130 00	125 00	118 00	121 50	6) 116 73	134 71	130.00	104 43	106.50
Berlin (*c*) German big, new laid (Rm p 100)									
marked « G I S » 65 gr each	12 00	12 00	12 00	12 00	12 00	11 50	12 00	10 57	10 37
marked « G I B » 55/60 gr each	10 00	10 00	10 00	10 00	10 00	10 00	11 00	9.34	9.03
London Egg Exchange (*d*) (sh p great hundred)									
English, National Mark specials	22/6	23/6	25 3	25/6	23/0¾	24/1½	23/6	15/9	15/5
Belgian 15¼ lb p 120	n q	n q	14 6	13 -	13/9	* 13/9	n q	*11/3¼	* 11/0¾
Danish 18 lb p 120	)16 9	7) 17 -	7) 17 6	16/9	15 6¼	17/6¾	19/9½	12/5	12/5¾
Northern Irish 18 lb p 120 2)	21	n q	n q	n q	n q	23/6	n q	15/1½	* 12/9½
Dutch all brown 16 lb p 120	17 9	17/9	17/9	17 9	16/10½	* 18 6½	n 19/7½	13/2¼	13/5
Polish, 51/52 grams each	8/10½	8/4½	8 7½	8/7¼	8/4	8/6	8/1½	* 7 1¼	6/10¾
Chinese violet	9/6	9/7½	9/7½	9 7½	9/4½	9/2½	8/8¼	* 8 10½	* 8/3¾
Australian 16 lb p 120	14 -	14 7½	14 1½	13 6	13 3¼	12/3¾	12/5¼	*11 2½	* 11/5¾
Maritime Freights (RATES FOR ENTIRE CARGOES)								1935 36	1934-35
Shipments of Wheat and Maize.									
Danube to Antwerp Hamburg (shill per long ton)	20 -	20/-	19 9	19 9	19 7½	n q	n 13/10¾	* 14/7	* 13/11
Black Sea to Antwerp Hamb (shill per long ton)	16 10	16/9	16 6	16 3	15 11¼	11/3	n 10/6	* 10/-	* 9/11
St John to Liverpool 3) (shill per 480 lb)	n q	n q	n q	n q	n q	* 2 0½	n q	* 2/0¾	* 1/6
Port Churchill to United Kingdom (shill per 480 lb)	n. q	n q	n q	n q	* 3/-	n q	n q	n q	* 2/9
Montreal to United Kingdom (shill per 480 lb)	2 3	2/3	2 3	2 3	2 3	* 2 -	1 6½	* 1/11	* 1/6¾
Gulf to United Kingdom 3) (shill per 480 lb)	n q	n q	n q	n q	n q	2/6	2/6	* 2/6	2/6
New York to Liverpool 3) (shill per 480 lb)	n q	n q	n q	n q	n q	1 6	1/6	* 1/6	1/6
Northern Range to U K Cont (shill per 480 lb)	n q	n q	n q	n q	n q	2 -	n. q	1/10	n q.
North Pacific to United Kingdom (sh per long ton)	28/6	28/-	25 6	24 9	24 6¾	20 6	n q	19/3¾	* 18/1½
La Plata Down River 4)									
Bahia Blanca to U K Continent (shill per long ton)	19 6	19/6	19 3	19 -	18/6¾	* 16 9	14/3½	* 16/6½	14/11
La Plata Up River 5) Necochea to U K /Continent (shill per long ton)	20/9	20/9	20/6	20/3	20/0¾	17/10½	16/3	17 9½	16/2
Western Australia to U K / Continent (shill per long ton)	n q	n q	n q	n q	*28 -	27 6	26/6	* 26 6	24/6
Shipments of Rice.								1935	1934
Saigon to Europe (shill per long ton)	29/-	29/-	29 -	28 7½	28 7½	25/10½	26 4½	* 23/5	24/2¾
Burma to U K /Continent (shill per long ton)	n q	n q	n q	n q	n q	n q	n q	* 21/8	* 23/3

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review — n q = *not quoted* — n = *nominal* — *a*) Average prices for weeks commencing on Fridays indicated — *b*) Average prices for weeks commencing on preceding Mondays — *c*) Thursday prices — *d*) Prices on preceding Monday

1) Shipments of wheat and maize Aug July — 2) From 28 Feb "Extra special quality" — 3) Rates for parcels by liners — 4) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo — 5) "Up River" includes the ports on the Paraná River as far as San Lorenzo Cargoes from ports beyond San Lorenzo (Colastine Santa Fé and Paraná) are subject to an extra rate of freight — 6) 28 Sept 3 Oct 105 00, 5 10 Oct 116 67 12 17 Oct 122 50 — 7) 17 lb p 120

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1)

NATIONAL CURRENCIES		Parity (1)	Actual Exchange Rates				Percentage deviation from parity with U. S. dollar: premium (+) or discount (—)			
			13 November 1936	6 November 1936	30 October 1936	23 October 1936	13 November 1936	6 November 1936	30 October 1936	13 October 1936
Germany. reichsmark		40.332	40.216	40.206	40,205	40.220	— 0.3	— 0.3	— 0.3	— 0.3
Argentina: paper peso		71.959	n.32.517	n.32.503	n 32.596	32.590	— 54.8	— 54.8	— 54.7	— 54.7
Belgium: belga	2)	23.542	16.919	16.901	16.873	16.840	— 28.1	— 28.2	— 28.3	— 28.5
	3)	16.950					— 0.2	— 0.3	— 0.5	— 0.6
Canada: dollar		100.000	100.101	100.020	100.037	100.031	+ 0.1	0.0	0.0	0.0
Denmark: crown		45.374	21.778	21.762	21.819	21.850	— 52.0	— 52.0	— 51.9	— 51.8
Spain: peseta		32.669	n. q.	n. q.	n q.	n. q.	—	—	—	—
France: franc 4)		6.633	4.640	4.625	4.648	4.664	— 30.0	— 30.3	— 29.9	— 29.7
Great Britain: £ sterling 5).		8.2397	4.8790	4.8761	4.8881	4.8878	— 40.8	— 40.8	— 40.7	— 40.7
Hungary: pengö		29.612	n.19.775	n 19.775	n 19.775	19.800	— 33.2	— 33.2	— 33.2	— 33.1
India: rupee		61.798	36.836	36.825	36.933	36.920	— 40.4	— 40.4	— 40.2	— 40.3
Italy: lira	2)	8.911	5.260	5.260	5.260	5.262	— 41.0	— 41.0	— 41.0	— 40.9
	6)	5.263					— 0.1	— 0.1	— 0.1	0.0
Japan: yen		84.396	28.511	28.488	28.574	28.570	— 66.2	— 66.2	— 66.1	— 66.1
Netherlands florin		68.057	53.881	53.608	54.124	53.880	— 20.8	— 21.2	— 20.5	— 20.8
Poland· zloty		18.994	18.832	18.825	18.827	18.860	— 0.9	— 0.9	— 0.9	— 0.7
Romania: leu		1.013	0.729	0.735	0.732	0.740	— 28.0	— 27.4	— 27.7	— 26.9
Sweden: crown		45.374	25.149	25.138	25.200	25.225	— 44.6	— 44.6	— 44.5	— 44.4
Switzerland		32.669	22.985	22.968	22.978	22.980	— 29.6	— 29.7	— 29.7	— 29.7
Czechoslovakia: crown	2)	5.016	3.538	3.539	3.539	3.542	— 29.5	— 29.4	— 29.4	— 29.4
	7)	3.512					+ 0.7	+ 0.8	+ 0.8	+ 0.9

1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i. e. 40.93 % less than formerly — 2) Former parity — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs the actual rates vary only slightly from this — 5) Quotations for the Egyptian pound are omitted, its relationship with £ sterling being fixed (97 1/2 piastres = 1 £ sterling) — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price-indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

Percentage variations in the index-numbers for October 1936.

COUNTRIES	Comparison with September 1936		Comparison with October 1935	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index numbers of prices of agricultural products	Index numbers of wholesale prices in general
Germany	— 1.1	— 0.1	— 0.4	+ 1.5
England and Wales	— 3.0	...	+ 7.5	...
Argentina	— 0.5	—	+ 15.1	—
Canada	+ 1.7	+ 0.9	+ 16.0	+ 5.5
United States· Bureau of Agric Economics.	— 2.3	—	+ 11.1	—
United States: Bureau of Labor	0.0	— 0.1	+ 7.4	+ 1.2
Finland	...	...	...	...
Hungary	+ 6.9	+ 4.6	— 11.5	— 4.2
New Zealand	— 3.2	—	+ 5.5	—
Netherlands	+ 1.9	+ 8.9	+ 1.9	+ 7.7
Poland	...	...	...	...
Yugoslavia·				
plant products	+ 6.5	+ 2.8	— 21.2	— 1.6
livestock products	— 0.3		+ 15.1	

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER [1]

DESCRIPTION	Oct. 1936	Sept. 1936	August 1936	July 1936	June 1936	May 1936	Oct. 1935	Oct. 1934	Year 1935	Year 1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	110,6	111.4	115.2	117.2	116.9	116.4	111,0	112,2	113.4	108.7
Livestock	89,4	92.6	92.0	89.1	88.9	88.7	91,5	79,3	84.2	70.9
Livestock products	111,6	111.7	111.6	108.8	107.3	107.2	110.2	109,1	107.1	105.0
Feeding stuffs	103,8	103.5	106.6	110.2	111.2	110.7	103,9	105,1	104.6	102.0
Total agricultural products	103,8	105 0	106.4	106.1	105.7	105.3	104,2	100,9	102.2	95.9
Fertilizers	65,3	65.2	64.4	62.9	68.4	67.9	67,0	68,6	66.8	68.7
Agricultural dead stock	112,0	111 8	111.5	111.4	111.3	111.4	111,1	111,2	111.1	111.1
Finished manufactures («Konsumguter»)	129,4	128.4	127.8	127.4	126.7	126.2	123.9	120,8	124.0	117.3
Wholesale products in general	104,3	104.4	104.6	104.2	104.0	103.8	102.8	101,0	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 2)	129	133	124	121	121	120	120	121	123	119
Feeding stuffs	101	99	105	93	87	85	86	98	87	91
Fertilizers	88	88	88	89	89	89	88	88	88	90
Wholesale products in general 3)	...	...	104,4	102.1	99.3	100.2	100.9	95,4	99.5	96.4
Argentina (Banco Central de la Republica Argentina) 1926 = 100.										
Cereals and linseed	88,0	88.3	92.9	85.1	78.9	78.3	72,1	71,8	67.2	68.1
Meat	94,0	97.6	101.4	95.7	92.8	89.4	90,9	81,2	84.0	78.5
Hides and skins	90,5	89.0	83.4	77.7	78.1	80.7	91,9	67,5	80.5	71.6
Wool	110,7	109.1	106.4	100.1	98.9	97.7	84,5	80,4	74.6	84.3
Dairy products	86,0	90.8	92.9	84.6	86.6	94.2	113,4	68,4	88.8	62.3
Forest products	95,2	95.8	95.6	95.5	97.7	98.0	94,9	70,2	92.2	73.1
Total agricultural products	90,6	91.1	93.9	87.0	82.5	82.1	78,7	72,9	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc)	76,4	74.2	74,1	63.2	60.8	59.9	59,3	55,3	57.1	53.8
Livestock and livestock products	76,2	76.4	71.9	71.6	70.7	73.0	76,7	70,3	73.9	67.7
Total Canadian farm products	76,3	75,0	73.3	66.3	64.5	64.8	65,8	60,9	63.4	59.0
Fertilizers	74,3	74.3	74.3	74.3	74.3	74.3	75.8	75,4	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75,4	75.5	75.5	75.0	75.4	75.3	75,3	76,4	75.7	77.0
Wholesale products in general	77,1	76.4	76.2	74.4	72.3	71.8	73,1	71,3	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231, December 1934, page 696). — 2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. — 3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

Description	Oct.	Sept.	August	July	June	May	Oct.	Oct.	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	128	130	129	109	87	88	101	109	103	93
Cotton and cottonseed	104	106	103	105	96	96	94	107	101	99
Fruits	104	105	108	117	115	103	82	98	91	100
Truck crops (market garden crops)	131	153	134	115	99	105	120	110	127	104
Meat animals	120	123	123	119	120	118	125	74	117	68
Dairy products	125	128	125	116	106	106	104	100	108	95
Chickens and eggs	127	119	112	106	103	101	132	108	117	89
Miscellaneous	133	141	152	131	120	97	103	137	97	108
Total agricultural products	121	124	124	115	107	103	109	102	108	90
Commodities purchased 1)	127	127	126	123	120	121	123	126	125	123
Agricultural wages 1)	110	—	—	108	—	—	102	93	95	88
United States (Bureau of Labor) 1926 = 100										
Cereals	102.1	102,0	102.4	88.9	73.0	70 6	86.4	85.0	82.4	74.5
Livestock and poultry	81.2	83.8	84.5	82.0	83.2	82.5	86.6	55.3	84.9	51.5
Other farm products	80.2	78.6	77.8	78.2	75.8	71.4	70.3	75.4	73.4	70.5
Total agricultural products	84.0	84.0	83.8	81.3	78.1	75.2	78.2	70.6	78.7	65.3
Agricultural implements	93.9	94.2	94.2	94.2	94.2	94.2	93.7	92.0	93.7	89.6
Fertilizer materials	67.4	67.6	66.7	65.2	64.0	64.7	67.2	65.7	66.3	67.1
Mixed fertilizers	69.7	69,4	69.3	68.7	66.0	65.3	67.9	73.0	70.6	72.5
Cattle feed	111.8	107.5	114.2	107.9	80.7	71.2	71.6	97.6	88.4	89.4
Non-agricultural commodities	80.9	80.9	80.9	80.3	79.4	79.2	80.9	77.6	80.2	76.9
Wholesale products in general.	81.5	81.6	81.6	80.5	79.2	78.6	80.5	76.5	80.0	74.9
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	...	89	87	87	89	88	84	81	80	82
Potatoes	...	59	77	93	83	83	59	51	75	49
Fodder	...	64	60	59	65	66	60	63	62	72
Meat	...	80	86	88	82	77	71	70	75	71
Dairy products	...	81	81	81	80	78	90	80	83	75
Total agricultural products	...	78	79	79	78	76	79	74	76	73
Wholesale products in general.	...	92	91	91	90	90	92	90	90	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	77	72	71	71	70	72	87	70	—	—
Wholesale products in general	91	87	86	86	85	86	95	82	—	—
Italy (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	...	...	...	...	...	...	...	313.4	...	297.9
Wholesale products in general.	...	...	...	...	...	...	340.7	276.4	...	275.8
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	109.8	122.6	119.8	114.2	106.9	96.9	111.4	75.1	91.3	76.7
Meat	159.4	156.5	155.0	158.4	159.8	157.8	150.2	151.8	157.6	151.8
Wool	105.6	105.3	107.4	111.7	102.2	109.0	92.0	104.1	82.2	127.3
Other pastoral products	132.7	123.7	124.4	123.1	121.6	116.4	112.5	77.1	96.7	88.8
All pastoral and dairy products	124.5	128.7	127.5	126.8	121.9	118.0	117.6	101.7	107.2	108.9
Field products	118.1	118.4	120.4	118.8	127.4	128.8	125.6	120.4	126.0	120.0
Total agricultural products	124.3	128.4	126.6	128.3	122.1	118.4	117.8	102.0	108.8	104.7

1) 1910-1914 = 100.

Description	Oct. 1936	Sept. 1936	August 1936	July 1936	June 1936	May 1936	Oct. 1935	Oct. 1934	Year	
									1935-36 3)	1934-35 3)
Norway (Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	149	153	154	148	148	145	143	139	144	126
Potatoes	117	97	101	128	132	147	139	117	165	132
Pork	116	115	112	101	101	93	118	87	109	83
Other meat	139	150	155	155	146	143	143	137	146	137
Dairy products	139	135	135	135	137	137	132	132	139	132
Eggs	142	127	110	98	88	88	140	129	102	92
Concentrated feeding stuffs	128	130	127	127	126	129	129	117	123	109
Maize	132	134	132	128	125	125	118	114	113	101
Fertilizers	89	84	86	87	88	89	83	72	82	81
Netherlands (Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	57	57	57	52	47	50	53	62	50	58
Livestock products	53	52	54	54	55	54	53	48	51	49
Total agricultural products	54	53	55	53	53	53	53	52	51	51
Agricultural wages	68	68	68	68	69	68	69	71	69	71
Wholesale products in general 1)	68.2	62.6	62.7	62.3	61.6	61.0	63.3	—	4) 61.5	4) 63.0
Poland (Central Bureau of Statistics) 1928 = 100.									1935	1934
Raw plant products	...	37.2	34.6	34.4	40.0	39.8	33.7	35.6	33.9	35.6
Meat animals	...	40.7	40.7	40.5	40.6	41.1	40.4	34.8	35.5	36.7
Dairy products and eggs	...	39.1	36.9	37.8	35.8	37.5	45.5	39.8	41.2	41.2
Products directly sold by farmers	...	38.7	37.0	37.0	39.4	39.8	38.1	36.1	35.8	37.0
Flour and groats	...	44.0	40.3	38.0	39.7	39.2	36.7	40.2	36.7	38.8
Meat and lard-fat	...	47.6	47.8	47.5	46.6	48.0	49.2	40.2	40.8	43.5
Sugar, alcohol, beer	...	71.3	71.4	71.4	71.7	71.6	79.4	85.5	79.2	88.6
Products of agricultural industries	...	54.2	53.1	52.3	52.6	52.9	55.0	55.0	52.0	56.7
Total agricultural products	...	46.4	45.0	44.5	45.9	46.3	46.5	45.5	43.8	46.8
Commodities purchased 2)	...	64.9	64.8	64.4	64.0	63.7	66.7	...	66.3	70.3
Wholesale products in general 2)	...	54.6	53.9	53.6	53.9	53.7	54.4	...	53.0	55.7
Yugoslavia (National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	64.3	60.4	60.8	60.9	64.5	69.0	81.6	58.8	68.2	57.4
Livestock products	64.7	64.9	62.6	61.1	56.2	57.4	56.2	58.4	56.6	55.4
Industrial products	71.1	69.2	67.6	67.5	67.6	67.9	68.8	66.0	66.7	67.4
Wholesale products in general	68.9	67.0	66.0	65.6	65.4	67.0	70.0	63.6	65.9	63.2

---

1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) In consequence of a revision of the index-numbers of the prices of fertilizers, the other series affected by these prices have also been revised. — 3) Agricultural year: Norway: 1st April-31 March; Netherlands. 1st July-30 June. — 4) Calendar year.

SUPPLEMENTARY INFORMATION ON PRICES

Some quotations on Friday 20 November 1936, are given in the following table. The qualities and price-units used in various markets will be found in the table " Weekly Prices by Products " pages 855-858.

Wheat

Budapest	18 12
Winnipeg	108 $^{3}/_{4}$
Chicago	122
Minneapolis	135 $^{5}/_{8}$
New-York	135 $^{5}/_{8}$
Buenos Aires	11 05
Hamburg Manitoba N° 1	11 70
» Barusso	9 83
Liverpool and London	
N° 1 North. Manitoba (Atlantic)	40/9
N° 1 North. Manitoba (Pacific)	41/9
N° 3 North. Manitoba (Pacific)	39/10 $^{1}/_{2}$
White Pacific	n c
Rosafé	1) 35/6 $^{3}/_{4}$
Karachi	38/4 $^{1}/_{2}$
West Australian	1) 38 7 $^{1}/_{2}$
New South Wales	1) 38/7 $^{1}/_{2}$

Rye

Hamburg	7 55
Budapest	14 75
Warsaw	18 88
Groningen	7 80

Barley

Warsaw	20 00
Liverpool and London	
Danubian	n c
Russian	n c.
Canadian N° 3 Western	26/6
Californian	41/9
Plata	21/7 $^{1}/_{2}$
Iraqian	1) 21/3
Groningen	7 67

Oats

Buenos Aires	5 40
Paris	118 75
Liverpool and London.	
Canadian N° 2 Western	23/-
Plata	14/1 $^{1}/_{2}$

Maize

Buenos Aires	5 45
Liverpool and London.	
Danubian	n. 23/3
Yellow Plata	20/8 $^{1}/_{4}$
N° 2 African	n c

Rice (milled)

Marseilles	79 00
London: N° 3 Belloch	n c
» Italian	n c.
» American Blue Rose	17/7 $^{1}/_{2}$
» N° 2 Rangoon	8/1 $^{1}/_{2}$
» N° 1 Saigon	8/3
» Siam Super	9/4 ½

Linseed

Buenos Aires	14 00
London Plata	11-6-3
» Bombay	13-16-3
Duluth	2) 205 $^{1}/_{2}$

Cottonseed

Alexandria Upper Egypt	77.2
» Sakellaridis	71.5
London Sakellaridis	n. 7-10-0

Cotton

New Orleans	12 11
New York	12 18
Bombay Broach, f. g, futures	3) 218 $^{1}/_{2}$
Alexandria Sakellaridis, f g. f.	19.80
» Ashmuni, f. g f.	13 15
Le Havre	357 50
Liverpool Middling, fair	n 7 93
» Middling	6 76
» Sao Paulo, g f.	6 88
» Broach, g f	n. 5 46
» C P. Oomra s'fine	5 65
» Sakellaridis, f. g. f.	11 29
» Upper Egyptian, f. g f.	7.46

Butter

Copenhagen	209 00
Antwerp	21 00
London English	133/-
» Danish	120/-
» Estonian	n c.
» Latvian	n c.
» Dutch	100/-
» Argentine	n c.
» Siberian	99/-
» Australian	107/6
» New-Zealand	109/6

Cheese

London: Cheddar	85/-
» Cheshire	92/2
» Gorgonzola (Italian)	105/-
» Edam 40 %	51/6
» Canadian	73/-
» New-Zealand	73/3

Eggs

Antwerp· Belgian	69.00
Denmark· Danish	160.00
London: English	22/6
» Belgian	n c.
» Danish	13/6
» Northern Irish	n. c.
» Dutch	17/9
» Polish	8/9
» Chinese	9/6
» Australian	13/1 ½

---

1) Shipping December — 2) December futures — 3) April-May futures.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

26-XI-1936.

MONTHLY CROP REPORT
AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Lithuania, Poland and Sweden; 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Switzerland. 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = from June 1934, crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

THE RESULTS OF THE CEREAL CROPS

Wheat. — The first official estimate of the Argentine crop, giving a figure of 250 million bushels, issued in the middle of December, confirmed the forecast of a large crop on a reduced area; with respect to the 1930-34 average the increase was 2 per cent. on a harvested area 11 per cent. smaller, the unit-yield being thus one of the best in the last ten years. Last October we forecast on the basis of the area sown and the assumption of normal weather conditions in the last months of growth, a production of 240 million bushels, which is in fact very close to the present estimate. Of the four large wheat exporters Argentina is thus the only one that has had a large crop, Canada, the United States and Australia having had crops distinctly smaller than those of last year and than their respective averages. The second estimate for Australia has brought an increase of 4 million bushels on the October forecast in consequence of the better results obtained in Victoria and South Australia, and production is now estimated at 134 million bushels against 143 million last year and 186 million on the average for 1930-34.

These last estimates involve an increase of about 14 million bushels in the total wheat production of the southern hemisphere as calculated last month.

For the northern hemisphere, on the other hand, the Institute has received very few revisions or new estimates. In Italy, according to the Government declaration, the crop is 20 per cent. below that of 1935, which would mean a production of about 226 million bushels against 283 million last year and 253 million on the average. Denmark has communicated its first crop estimate, which is appreciably smaller than that of 1935 as a result of the reduction in area cultivated and the less satisfactory unit-yield. The corrections for other European countries are of small importance. As for North America the United States have issued their final figures of production, practically confirming the previous figures for both winter and spring wheat; on the whole they are less than the provisional figures by about 1 million bushels. The final estimate for Canada will be published in January and will probably involve only a slight modification of the November figure.

The following table contains the production totals by continents and takes account of the most recent changes in crop estimates. The total world production is slightly larger, by about 36 million bushels, than was calculated last month.

World wheat production 1)

(Million bushels)

YEARS	Europe 2)			North America	South America	Asia 2)	Africa	Occania	Total 2)	U S S R
	Importing countries	Exporting countries	Total							
1923 27 Average	920	323	1,243	1,210	275	402	108	143	3,381	694
1928	976	433	1,409	1,492	399	342	116	168	3,926	807
1929	1,073	378	1,451	1,139	221	384	136	134	3,465	694
1930	915	445	1,360	1,319	273	456	115	221	3,744	989
1931	973	462	1,435	1,275	264	407	131	197	3,709	753
1932	1,211	279	1,490	1,210	286	393	140	225	3,744	742
1933	1 292	455	1,747	845	345	422	124	186	3,669	1,018
1934	1,215	336	1,551	814	290	433	152	140	3,390	1,117
1935	1 190	385	1 575	914	195	450	136	151	3,421	1,132
Forecast 1936	1,014	468	1,482	873	305	434	113	142	3,349	

1) Not including China, Iran, Turkey and Iraq — 2) Not including U S S R

The international trade in wheat, for which the official figures are now known for the first quarter of the present season, shows with respect to the corresponding figures of last year an appreciable recovery of exports in August and September, followed by a slackening in October. In the total there is a slight increase on the past season, thanks especially to the heavy shipments of European exporting countries, which obtain a total of 38 million bushels against hardly 11 million in the August-October quarter of 1935 The total exports of the three large exporting countries - Canada, Argentina and Australia - remain a little below the total of last year (101 million against 103 million bushels), Soviet and North African exports are practically nil, though last year in the August-October quarter they already reached a total of 25 million. The rise in wheat prices on the international market also stimulated exports from India, which shipped in the first quarter of the season about 4 million bushels, a figure much higher than the total attained during the whole season 1935-36.

The net imports into European countries in the first three months of the season show a fairly appreciable increase with respect to the extremely low totals recorded in the same period last year but still remain smaller than the corresponding figures of two years ago. The smallness of the demand is especially

*World net exports of wheat (including flour in terms of wheat) *).*

(Million bushels).

MONTHS	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
August	47	39	49	45	41	67	77	71
September	52	50	43	51	48	78	74	57
October	48	51	50	46	61	74	84	60
November		51	43	42	54	67	77	51
December		34	39	51	60	64	59	50
January		34	43	48	62	62	55	48
February		46	41	45	63	73	70	45
March		45	49	50	64	74	67	50
April		30	42	36	40	70	62	43
May		45	47	44	52	67	81	50
June		41	33	45	42	59	67	52
July		38	36	46	44	46	52	53
Total August-October	*147*	*140*	*142*	*142*	*150*	*219*	*235*	*188*
Total	1) *545*	*504*	*515*	*549*	*631*	*801*	*825*	*630*

*) Aggregate net exports of the normal exporting countries (United States net imports not deducted)
1) Forecast October 1936

apparent for the United Kingdom and Irish Free State, which in the August-October quarter of 1936 together imported less than in the corresponding period in 1935 and 1934, continental imports, on the other hand, are appreciably larger than in the last two years.

The demand from extra-European countries has been maintained practically at the level of last year, thanks to the continued demand from the United States, which had a net import in August-October of 12 million bushels against 10 million last year.

The figures for net imports of wheat into European countries in the first months of the season are reproduced in the following table.

The information that has reached the Institute in December regarding autumn sowings for the 1937 crop gives grounds for believing that work has been carried out in more or less normal conditions in all European countries, that germination has been regular and that condition of sowings in mid-December was generally satisfactory. In Poland, Romania and Great Britain some delay in sowings through the moist condition of the soil is reported On the whole there is the impression that the area cultivated to wheat in Europe will be a little larger than last year. In the Soviet Union the weather favoured sowing and crop condition is good.

In the United States the first estimate of area sown to winter wheat shows, as was expected, a large increase on that of last year and the average. Crop condition is satisfactory, good rains in the first half of December having reestablished the condition of sowings in the west of the Winter Wheat Belt,

*Net imports of wheat into Europe (including flour in terms of wheat *)*

(Million bushels)

MONTHS	Year 1936-37			Year 1935-36			Year 1934-35		
	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe	United Kingdom and Irish Free State	Other European countries	Total Europe
August	16	14	30	16	11	27	18	14	32
September	16	16	32	15	13	28	20	16	36
October	19	16	35	21	15	36	18	13	31
November				21	14	35	17	12	29
December				20	11	31	20	12	32
January				15	10	25	12	10	22
February				14	8	22	16	10	26
March				20	8	28	20	11	31
April				18	9	27	17	11	28
May				20	11	31	22	10	32
June				21	12	33	18	10	28
July				19	12	31	19	12	31
Total August-October	*51*	*46*	*97*	*52*	*39*	*91*	*56*	*43*	*99*
Total Year	1) *230*	1) *190*	1) *420*	*220*	2) *134*	2) *354*	*217*	3) *141*	3) *358*

*) Aggregate net imports of normal importing countries after deduction of net exports if any.

1) Forecast October 1936. — 2) After deduction of net exports of 7 million bushels from Latvia, Portugal and Sweden. — 3) After deduction of net exports of 21 million bushels from France, Estonia, Latvia and Sweden.

which was suffering from drought on the Pacific Coast, however, the prolonged drought compromised germination and a considerable proportion of the crop will have to be turned up and resown. In India sowings were carried out in good conditions and in the Levant and North Africa crop condition is generally satisfactory.

Rye. — With the preliminary estimate of Denmark, data are now available for almost all the European producers. Total European production may be calculated at 862 million bushels, a decrease of 28 million on last year and one of 44 million on the 1930-34 average. The area cultivated to rye having remained practically stationary about the level of last year and the average, the mediocre result obtained in 1936 may be almost entirely imputed to unfavourable weather, which reduced unit-yield over the greater part of the country, especially in the north.

The production of North America, slightly reduced by the final estimate for the United States, remains one of the lowest recorded in recent years. As for the southern hemisphere, the Argentine crop, which is in any case of very modest importance, is below average, though considerably exceeding the extremely small one of last year.

World production of rye 1).

(Million bushels of 56 lb.)

	Europe	North America	South America	Total 1)	U.S.S R.
Average 1923-27	807	63	6	876	858
Year 1928	905	51	10	966	760
» 1929	941	47	5	993	803
» 1930	925	67	5	997	929
» 1931	776	39	11	826	866
» 1932	933	47	13	993	866
» 1933	1,003	25	8	1,030	952
» 1934	894	21	17	932	791
» 1935	890	69	6	965	831
» 1936	862	30	10	902	...

1) Excluding U. S. S. R., China and Turkey.

World production of rye, excluding the Soviet Union, remains 6 per cent. below that of last year, which was practically the same as the five-year average; the production of the Soviet Union, though the figure has not yet been communicated to the Institute, appears to have been much the same as in 1935.

Barley. — In Europe the 1936 barley crop has been small, its total not having attained even that of last year, which was one of the smallest of the last ten years. In most countries production was below average; the greatest decreases are in Spain, Czechoslovakia and Denmark. Poland and Romania, the principal surplus producers of the continent. have had more or less average crops. In all, European production is about 50 million bushels or 7 per cent. below the 1930-34 average.

North American production, though slightly increased by the final estimate of the United States, is one of the worst of recent years.

In Asia production does not differ greatly from the average while in Africa, despite the good production in Marocco, it is practically the same as last year's poor crop.

In Argentina, where barley production shows a steady increase, the crop is much larger than that of last year and considerably exceeds the average.

The production of the Soviet Union, for which the official estimate is not yet available, seems to have been mediocre, despite the continual extension of the area under this cereal. An indirect confirmation of the poor unit-yields obtained in 1936 is given by the export data; during the first quarter, August-October, 0.4 million bushels of barley were exported against 16.0 million in the same period last year.

The bad results obtained in Europe, the Soviet Union and North America are reflected in the total of world production in 1936, which is the lowest of the last ten years.

World production of barley 1).

(Million bushels of 48 lb)

	Europe	North America	Asia	Africa	S America and Oceania	Total (1)	U.S S R.
Average 1923-27 . . .	643	276	266	96	37	1,318	239
Year 1928 . . .	744	473	234	115	37	1,603	262
» 1929 . . .	827	386	271	119	31	1,634	331
» 1930 . . .	758	441	253	96	32	1,580	312
» 1931 . . .	689	271	253	106	37	1,356	239
» 1932	776	386	257	110	55	1,584	230
» 1933 . .	776	221	253	106	55	1,411	358
» 1934	717	184	257	133	60	1,351	312
» 1935	698	367	262	101	41	1,469	375
» 1936 . . .	694	225	253	100	51	1 323	...

1) Excluding U. S. S. R , China and Turkey.

Oats. — Even for this cereal 1936 has been a year of small production. The European crop is slightly smaller than in 1935, when production was mediocre, and is about 10 per cent below the 1930-34 average. The North American crop is also small despite the slight increase in the final estimate of the United States. The Argentine forecast is for a crop much above last year's but still below the average.

World production of oats 1)

(Million bushels of 32 lb)

	Europe	North America	Asia and Africa	S America and Oceania	Total (1)	U S S R.
Average 1923-27 . . .	1,715	1,702	41	76	3,534	779
Year 1928	1,881	1,798	41	96	3,816	1,135
» 1929	2,060	1,419	41	103	3,623	1,084
» 1930	1,709	1,729	48	96	3,582	1,145
» 1931	1,695	1,474	34	103	3,306	758
» 1932	1,853	1,600	34	103	3,650	772
» 1933	1,938	1,061	34	96	3,129	1,061
» 1934	1,695	868	41	97	2,701	1,302
» 1935	1,667	1,619	34	69	3,389	1 259
» 1936	1 655	1,082	35	98	2,870	...

1) Excluding U. S S. R., China and Turkey.

As for barley, the bad results in Europe and North America lead to world production of oats in 1936 being distinctly smaller than in 1935 and than the average.

G. CAPONE.

CEREALS

Germany: In November the weather was characterized by heavy rain in the northwest while over the rest of the territory precipitation was below that of a normal year; soil moisture already existing in consequence of the October rains sufficed for the development of winter sowings. In general temperatures were low, retarding sprouting. In consequence of the cold wet weather in the last week of November fieldmice decreased greatly in numbers. On the other hand snails have caused some damage to winter rye.

Crop condition on 1 December expressed according to the system in use in the country and compared with the figures for 1 November 1936 and 1 December 1935 was as follows winter wheat 2.9 (3 0 and 2.5); winter rye 3.0 (3 0 and 2.5); winter barley 2.8 (2.8 and 2.5), winter spelt 2.8 (2.9 and 2.3).

Irish Free State: In November the weather was broken, with drizzling rain during the greater part of the month. Most of the threshing had already been done.

France: The first fifteen days of November were rainy, especially in the west, and later the temperature dropped in the north and east, bringing dry frosty weather. In the central and southern regions the temperature was milder and rain alternated with fine days in the south. During the first week of December the weather was cold in the north with some snow, mild and damp in the other regions, though there were some fine days.

Threshing was continued actively during November in the north and east

Sowings were delayed in the north and east by cold weather after the middle of November, in the other regions they were completed almost everywhere by the end of the month. Early autumn sowings have sprouted regularly and in a satisfactory manner, their start having been facilitated by the rains at the beginning of November; the later sowings have also sprouted regularly in the west and south-west, but in the central regions fairly large areas have had to be resown on account of the drought.

Winter field work was carried out on the whole under good conditions at the beginning of December.

Great Britain and Northern Ireland: Weather was generally wet and stormy in the first half of November, save in the north of Scotland, where mild and fine weather, with some frost and occasional rains, prevailed. In the second half of the month there was some frost, particularly during the third week, and fog was prevalent in England.

Autumn cultivation and sowing were about normal, though there was still a good deal of wheat to be got in on heavier lands in England and Wales. On the whole, owing to favourable weather earlier in the autumn, work was fairly well forward in England and Wales, though in some districts the retarded lifting of sugar-beet delayed cereal sowings. Early-sown wheat germinated well and showed a healthy braird throughout the area.

Greece: The rains which fell during the first ten days of November were favourable to field work and sowings.

Hungary: In the first three weeks of November rainy or cloudy weather prevailed throughout the country. Toward the end of this period cultivation for sowings of winter cereals was very late, whether because of the rainy weather or because of the lateness of the sugar-beet, potato or maize crops. Sowings made in good time sprouted regularly and are well developed. The cold rainy weather, however, hindered development of the later sowings.

Wheat.

COUNTRIES	†) AREA					†) PRODUCTION							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936/37: 1935 — 1935/1936 = 100	% 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936/37: 1935 — 1935/1936 = 100	% 1936/37: Aver = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 5,151	5,205	5,310	99.0	97.0	1) 101,909	102,894	102,128	1) 169,845	171,487	170,209	99.0	99.8
Austria	629	609	535	103.2	117.5	8,109	9,306	7,576	13,514	15,509	12,626	87.1	107.0
Belgium	386	387	384	99.6	100.4	9,447	8,868	8,836	15,744	14,780	14,726	106.5	106.9
Bulgaria	2,822	2,729	3,078	103.4	91.7	35,583	28,755	31,719	59,304	47,925	52,864	123.7	112.2
Denmark	295	312	259	94.5	114.0	6,834	8,865	6,679	11,390	14,774	11,131	77.1	102 3
Spain	w) 10,768	11,254	11,237	—	—	72,896	94,793	94,850	121,490	157,985	158,080	76.9	76.9
Estonia	160	154	127	103.5	126.0	1,440	1,360	1,322	2,399	2,267	2,203	105.8	108.9
*Irish Free State	...	163	43	...	...	...	4,011	1,019	...	6,686	1,698	...	...
Finland	215	174	71	123.6	303.7	3,265	2,540	1,105	5,442	4,233	1,842	128.5	295 4
France	12,712	13,252	13,281	95.9	95.7	146,612	170,973	183,193	244,349	284,949	305,316	85.8	80.0
Engl. and Wales	1,703	1,772	1,450	96.1	117.4	29,949	36,355	28,932	49,915	60,592	48,220	82.4	103 5
Scotland	94	101	66	93 1	141.2	2,128	2,666	1,649	3,547	4,443	2,748	79 8	129 1
*Northern Ireland	7	9	5	75.8	134.0	...	217	119	...	362	198	...	...
Greece	2,104	2,092	1,623	100.5	129.6	14,246	16,308	11,048	23,743	27,180	18,414	87.4	128.9
Hungary	4,107	4,135	3,943	99.3	104.2	52,046	50 535	45,904	86,741	84,223	76,506	103.0	113 4
Italy	...	12,367	12,170	...	..	2) 135,700	169,658	151,564	2) 226,200	282,758	252,602	80 0	89.5
Latvia	319	347	262	91.8	121.8	3,163	3,912	3,302	5,272	6,520	5,503	80.9	95.8
Lithuania	485	536	505	90.4	95 9	4,519	6,056	5,455	7,532	10,093	9,092	74.6	82.8
Luxemburg	43	43	30	100.0	142.0	616	613	448	1,027	1,022	747	100.5	137.5
Malta	10	9	9	105.3	103.9	141	107	179	236	179	299	131.5	78.8
Norway	75	59	32	126.9	230.8	1,297	1,122	482	2,162	1,869	804	115.7	268.9
Netherlands	375	380	267	98.5	140.3	9,755	9,992	7,082	16,259	16,653	11,802	97.6	137.8
Poland	4,302	4,335	4,280	99 3	100.5	46,959	44,331	44,561	78,263	73,883	74,267	105 9	105 4
Portugal	...	1,377	1,321	..	...	5,036	13,256	10,871	8,393	22,092	18,118	38.0	46.3
Romania	8,481	8,496	7,704	99.8	110.1	77,231	57,864	62,069	128,716	96,438	103,446	133.5	124.4
Sweden	694	674	707	103.0	98.2	13,547	14,167	14,351	22,579	23,611	23,918	95.6	94.4
Switzerland	171	150	142	114.0	120.6	2,818	3,594	2,692	4,696	5,989	4,486	78.4	104 7
Czechoslovakia 3)	2,291	2,380	2,131	96 3	107.5	33,350	37,257	32,230	55,582	62,094	53,715	89.5	103.5
Yugoslavia	5,463	5,313	5,099	102.8	107.1	64,454	43,861	47,697	107,421	73,100	79,494	147.0	135 1
Total Europe	§) *77 599*	*78,642*	*76,023*	*98.7*	*102.1*	*883,050*	*940,008*	*907,924*	*1,471,761*	*1,566,648*	*1,513,178*	*94 0*	*97.3*
*U.S.S.R. (w)	34,721	32,507	27,080	106.8	128.2	...	263,597	217,208	...	439,319	362,006	...	...
*U.S.S.R. (s)	...	60,786	58,721	...	...	...	416,086	337,518	..	693,464	562,519	...	. .
Canada	25,289	24,116	25,682	104.9	98.5	140,100	166,403	209,136	233,500	277,339	348,560	84.2	67.0
United States (w)	37,608	33,402	37,073	112.6	101 4	311,406	279,191	331,252	519 010	465,319	552,087	111.5	94.0
United States (s)	11,212	17,827	17,098	62 9	65.6	64,470	96,615	107,744	107,450	161,025	179,574	66 7	59.8
Mexico	1,217	1,199	1,244	101 5	97.9	7,796	6,167	7,248	12,993	10,279	12,080	126.4	107.6
Total North Amer.	*75,326*	*76,544*	*81,097*	*98 4*	*92 9*	*523,910*	*548,376*	*655,380*	*872,953*	*913,962*	*1,092,301*	*95.5*	*79.9*
*Chosen	...	800	809	...	...	...	5,848	5,429	...	9,747	9,048	...	...
India	33,631	34,490	33,315	97.5	100.9	211,344	217,907	214,368	352,240	363,179	357,280	97.0	98.6
Japan	1,686	1,627	1,356	103.7	124.4	27,117	29,233	22,080	45,194	48,721	36,799	92.8	122.8
Manchukuo	2,644	2,420	3,243	109.2	81.5	18,409	22,179	27,066	30,680	36,964	45,109	83.0	68.0
*Palestine	...	...	480	...	...	...	2,271	1,523	...	3,785	2,538	...	...
*Syria and Leb	1,305	1,288	1,245	101.3	104.8	...	10,026	8,783	...	20,043	14,638	...	...
*Turkey	8,776	8,474	7,567	103.6	116 0	4) 48,170	55,585	55,878	4) 80,281	92,640	93,128	—	—
Total Asia	*37,961*	*38,537*	*37,914*	*98.5*	*100.1*	*256,870*	*269,319*	*263,514*	*428,114*	*448,864*	*439,188*	*95.4*	*97.5*
Algeria	4,291	4,095	3,893	104.8	110.2	16,656	20,120	19,543	27,759	33,532	32,571	82.8	85.2
*Cyrenaica	...	52	20	...	...	...	...	47	...	...	78	...	...
Egypt	1,464	1,463	1,560	100.0	93.8	27,421	25,933	25,877	45,701	43,221	43,128	105.7	106.0
*Eritrea	..	11	13	...	...	...	66	44	..	110	73	...	...
*Kenya 5)	...	48	44	...	...	...	343	268	...	572	447	...	..
French Morocco	3,142	3,616	2,887	86.9	108.9	7,945	12,022	17,705	13,242	20,036	29,509	66.1	44.9
*Tripolitania	...	30	20	...	...	...	106	81	...	176	134	...	...
Tunisia	...	1,829	1,995	...	...	4 630	9,921	7,774	7,716	16,534	12,956	46.7	59 6
Total North Africa	§) *10,726*	*10 993*	*10,335*	*97.5*	*103.8*	*56,652*	*67,996*	*70,899*	*94,418*	*113,323*	*118,164*	*83.3*	*79.9*
Argentina	15,728	11,688	17,709	134.6	88.8	149,915	84,614	146,361	249,853	141,020	243,930	177 2	102.4
*Chile	...	2,051	1,763	...	...	...	20,505	16,387	...	34,175	27,311	...	...
*Uruguay	...	1,201	1,055	...	...	...	7,708	5,926	...	12,846	9,876	...	...
Un. of S. Afr. 5)	2,133	2,501	1,516	85.3	140 7	9,488	12,117	7,380	15,814	20,195	12,301	78.3	128.6
Australia	12,579	11,924	15,223	105.5	82.6	80,113	85,559	111,464	133,522	142,598	185,773	93.6	71.9
*New Zealand 6)	222	252	273	87.9	81.4	. .	5,316	4,822	...	8,859	8,037	...	...
TOTALS	§) **232,052**	**230,829**	**239,817**	**100.5**	**96.8**	**1,959,998**	**2,007,989**	**2,162,922**	**3,266,435**	**3,346,610**	**3,604,835**	**97.6**	**90.6**

See notes on page 875

Rye.

COUNTRIES	†) AREA 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 1936/37: 1935 — 1935/1936 = 100	% 1936 1936/37: Aver. = 100	†) PRODUCTION 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 1936/37: 1935 — 1935/1936 = 100	% 1936 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany . .	1) 11,154	11,219	11,141	99.4	100.1	1) 169,498	164,866	172,215	1) 302,677	294,404	307,527	102.8	98.4
Austria . .	945	930	944	101.6	100.1	10,152	13,673	12,707	18,129	24,416	22,691	74.3	79.9
Belgium	525	529	553	99.3	94.9	7,893	10,372	12,018	14,094	18,522	21,461	76.1	65.7
Bulgaria . .	434	433	562	100.3	77.3	4,469	4,350	5,424	7,980	7,767	9,685	102.7	82.4
Denmark . . .	326	391	346	83.5	94.4	4,630	6,290	5,361	8,267	11,232	9,573	73.6	86.4
Spain . .	w) 1,471	1,415	1,494	—	—	10,110	10,755	12,412	18,053	19,206	22,164	94.0	81.5
Estonia . . .	338	357	365	94.5	92.6	3,392	3,810	4,437	6,058	6,804	7,923	89.0	76.5
*Irish Free State	...	2	3	...	...	...	39	53	..	69	95	...	...
Finland	593	598	553	99.2	107.2	7,143	7,706	7,710	12,755	13,760	13,768	92.7	92.6
France .	1 634	1,668	1,747	98.0	93.5	15,674	16,448	17,932	27,988	29,372	32,022	95.3	87.4
Greece . .	166	182	173	91.2	95.6	1,418	1,222	1,231	2,531	2,183	2.198	116.0	115.2
Hungary	1,619	1,537	1,583	105.3	102.3	16,013	16,044	15,950	28,595	28,650	28,483	99.8	100.4
*Italy. . .	...	272	291	. .	...	...	3,509	3,506	...	6,267	6,262	...	...
Latvia . .	637	668	675	95 4	102.0	0,305	8,022	6,941	11,260	14,326	12,395	78.6	90.8
Lithuania .	1,216	1,267	1,217	96.0	99.9	11,328	14,124	12,668	20,229	25,221	22,621	80.2	89.4
Luxemburg . .	19	19	20	100.0	98.0	256	253	273	456	452	487	100.9	93.7
Norway . .	15	15	16	95.3	90.5	241	271	256	430	483	458	89.0	94.0
Netherlands	587	519	440	113.1	133.3	11,244	10,323	8,771	20,078	18,434	15,662	108.9	128.2
Poland	14,403	14,293	14,215	100.8	101.3	141,758	145,881	142,456	253,139	260,502	254,387	97.2	99.5
Portugal . .	...	332	392	...	...	2,045	2,618	2,599	3,652	4,674	4.640	78.1	78.7
Romania .	1,041	960	941	108.4	110.6	9,992	7,126	7,686	17 842	12,724	13,725	140.2	130.0
Sweden .	527	560	552	94.2	95.6	8,307	9,585	9,427	14,834	17,116	16,833	86.7	88.1
Switzerland	38	39	44	99.1	86.1	489	717	796	874	1,279	1,422	68.3	61.5
Czechoslovakia .	2,494	2,493	2,530	100.0	98.6	31,667	36,121	39,507	56,549	64,502	70,548	87.7	80.2
Yugoslavia .	628	623	612	100.7	102.6	4,481	4,323	4,605	8,002	7,720	8,223	103.7	97.3
Total Europe .	§) *41,142*	*41,047*	*41,065*	*100.2*	*100.2*	*478,505*	*494,900*	*503,382*	*854,472*	*883,749*	*898,896*	*96.7*	*95.1*
*U. S S R. w)	57,426	58,607	64,255	98.0	89.4	...	465,565	486,374	...	831,368	868,528	. .	...
Canada . . .	635	719	858	88.3	74.0	2,446	5,379	5,006	4,368	9,606	8,939	45.5	48.9
United States. .	2,757	4,196	2,917	65.7	94.5	14,310	33,000	17,512	25,554	58,928	31,272	43.4	81.7
Total North Amer.	*3,392*	*4,915*	*3,775*	*69.0*	*89.9*	*16,756*	*38,379*	*22,518*	*29,922*	*68,534*	*40,211*	*43.7*	*74.4*
*Turkey . . .	909	756	656	120.2	138.6	4) 4,225	4,765	6,236	4) 7,544	8,508	11,136	—	—
Algeria.	4	3	3	147.3	107.7	6	10	23	11	17	40	60.7	26.2
*French Morocco.	...	5	2	...	...	...	13	11	...	24	20	...	...
Total North Africa	*4*	*3*	*3*	*147.3*	*107.7*	*6*	*10*	*23*	*11*	*17*	*40*	*60.7*	*26.2*
Argentina . . .	988	573	936	172.5	105.6	4,960	2,800	5,529	8,858	5,000	9,873	177.2	89.7
*Un. of S. Africa .	...	...	7) 99	...	...	500	...	8) 498	892	...	8) 889	...	100.4
TOTALS . . .	§) 45,526	46,538	45,779	97.8	99.4	500,227	536,089	531,452	893,263	957,300	949,020	93.3	94.1

See notes on page 875

Barley.

COUNTRIES	†) AREA 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver = 100	†) PRODUCTION 1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver = 100
	1 000 acres					1,000 centals			1,000 bushels				
Germany	1) 4 041	3 966	3 915	101.9	103.2	1) 76 434	74 682	69 512	1) 159 240	155 591	144 820	102.3	110.0
Austria	394	402	421	98.0	93.7	5 580	5 959	6 110	11 625	12 415	12 729	93.6	91.3
Belgium	98	96	89	102.0	110.3	963	2 059	2 112	2 007	4 290	4 400	46.8	45.6
Bulgaria	484	501	607	96.6	79.6	6 674	6 211	7 110	13 905	12 941	14 812	107.4	93.9
Denmark	909	852	875	106.7	103.9	19 802	24 229	21 746	41 338	50 478	45 304	81.9	91.2
Spain	2) 4 528	4 549	4 682	—	—	37 690	46 589	53 442	78 523	97 062	111 340	80.9	70.5
Estonia	250	258	267	96.9	93.8	1 939	2 024	2 441	4 039	4 216	5 085	95.8	79.4
*Irish Free State		139	119				3 496	2 666		7 283	5 555		
Finland	324	315	306	102.9	105.7	4 165	3 658	3 953	8 676	7 621	8 235	113.8	105.4
France	1 811	1 787	1 806	101.3	100.2	21 348	22 621	23 068	44 476	47 127	48 059	94.4	92.5
England and Wales	819	792	924	103.5	88.6	14 493	14 694	16 285	30 193	30 613	33 927	98.6	89.0
Scotland	72	77	84	94.4	86.1	1 478	1 702	1 711	3 080	3 547	3 565	86.8	86.4
*Northern Ireland	3	3	2	90.9	163.6		71	39		148	81		
Greece	503	510	541	98.6	92.8	4 449	4 272	4 165	9 269	8 901	8 678	104.1	106.8
Hungary	1 134	1 057	1 167	107.2	97.2	12 832	12 268	14 029	26 734	25 558	29 227	104.6	91.5
*Italy		481	529				4 410	5 121		9 187	10 670		
Latvia	468	477	450	98.0	104.0	3 639	4 511	4 341	7 580	9 398	9 044	80.7	83.8
Lithuania	529	508	490	104.2	108.1	4 777	5 547	5 150	9 951	11 556	10 730	86.1	92.7
Luxemburg	6	6	8	100.0	68.1	76	71	105	158	149	219	106.1	72.1
Malta 3)	5	5	6	103.1	80.7	83	65	128	173	136	267	126.5	64.6
Norway	149	153	140	97.4	106.9	2 683	2 720	2 349	5 589	5 667	4 893	98.6	114.2
Netherlands	107	100	64	106.9	167.7	2 646	2 512	1 598	5 512	5 234	3 329	105.3	165.6
Poland	2 934	3 012	3 000	97.4	97.8	31 306	32 372	31 874	65 221	67 442	66 406	96.7	98.2
*Portugal		160	173				1,068	955		2 226	1 990		
Roumania	3 980	4 079	4 571	97.6	87.1	35 535	20 367	35 311	74 033	42 431	73 567	174.5	100.6
Sweden	255	258	287	98.8	88.6	4 273	4 779	4 928	8 901	9 957	10 266	89.4	86
Switzerland	10	10	17	100.8	62.0	159	176	264	331	367	550	90.0	60.1
Czechoslovakia	1 565	1 594	1 694	98.2	92.4	22 462	23 400	27 259	46 797	48 752	56 791	96.0	82.4
Yugoslavia	1 051	1 044	1 054	100.7	99.7	9 322	8 279	9 087	19 421	17 248	18 931	112.6	102.6
Total Europe	*26 416*	*26 408*	*27 465*	*100.0*	*96.2*	*324 848*	*325 767*	*348 078*	*676 767*	*678 697*	*725 174*	*99.7*	*93.3*
*U. S. S. R.		21 604	18 219				179 946	139 610		374 895	290 859		
Canada	4 433	3 887	4 076	114.1	108.8	34 908	40 308	39 400	72 726	83 975	82 083	86.6	88.6
United States	8 322	12 371	10 640	68.0	78.2	70 776	137 172	102 562	147 450	285 774	213 671	51.6	69.0
Total North Amer.	*12 755*	*16 258*	*14 716*	*78.5*	*86.7*	*105 684*	*177 480*	*141 962*	*220 176*	*369 749*	*295 754*	*59.5*	*74.4*
*Chosen		2 548	2 448				25 959	21 341		54 082	44 461		
Japan	1 918	1 916	2 019	100.1	95.0	33 098	37 732	35 906	68 955	78 610	74 805	87.7	92.2
*Palestine			453				1 500	1 006		3 125	2 096		
*Syria and Leb.	736	715	797	102.7	92.4		7 548	6 977		15 725	14 535		
*Turkey	4 458	4 260	3 593	104.6	124.1	4) 30 777	30 237	33 523	4) 64 120	62 994	69 841	—	—
Total Asia	*1 918*	*1 916*	*2 019*	*100.1*	*95.0*	*33 098*	*37 732*	*35 906*	*68 955*	*78 610*	*74 805*	*87.7*	*92.2*
Algeria	3 166	3 104	3 349	102.0	94.5	13 663	15 849	16 982	28 465	33 020	35 381	86.2	80.5
*Cyrenaica		151	90					172			357		
Egypt	282	281	319	100.6	88.6	5 196	5 021	4 851	10 825	10 461	10 107	103.5	107.1
*Eritrea		62	53				276	317		574	660		
French Morocco	4 109	4 303	3 464	95.5	118.6	27 999	17 188	25 334	58 332	35 809	52 781	162.9	110.5
*Tripolitania		272	282				1 213	650		2 526	1 355		
Tunisia		1 532	1 209			1 653	8 819	4 189	3 445	18 372	8 727	18.7	39.5
Total Africa	§) *9 089*	*9 220*	*8 341*	*98.6*	*109.0*	*48 511*	*46 877*	*51 356*	*101 067*	*97 662*	*106 996*	*103.5*	*94.5*
Argentina	1 409	1 253	1 206	112.4	116.8	14 991	10 141	13 010	31 233	21 128	27 104	147.8	115.2
*Chile		161	162				2 251	2 385		4 689	4 970		
*Uruguay		33	14				217	84		451	174		
Un. of S. Afr. 5)	73	96	10) 69	76.3	105.1	667	808	11) 528	1 391	1 684	11) 1 100	82.6	126.4
*New Zealand 6)	25	28	28	91.1	90.4		373	315		776	657		
TOTALS	§) **51,670**	**55,151**	**53,816**	**93.7**	**96.0**	**527,799**	**598,805**	**590,840**	**1,099,594**	**1,247,530**	**1,230,934**	**88.1**	**89.3**

See notes on page 875

Oats.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 / 1936/37: 1935 — 1935/1936 = 100	% 1936 / 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 bushels				
Germany	1) 6,866	6,893	8,113	99.6	84.6	1) 126,079	118,734	136,318	1) 393,994	371,043	425,991	106.2	92.5
Austria	722	742	762	97.3	94.7	8,882	8,616	9,224	27,757	26,924	28,824	103.1	96.3
Belgium	691	714	716	96.8	96.5	11,440	17,050	16,114	35,749	53,280	50,355	67.1	71.0
Bulgaria	258	268	314	96.2	82.2	2,989	2,041	2,284	9,341	6,379	7,137	146.4	130.9
Denmark	931	911	953	102.2	97.7	18,519	23,043	21,924	57,871	72,008	68,511	80.4	84.5
Spain	w) 1,358	1,848	1,935	—	—	12,183	12,598	15,454	38,070	39,369	48,295	96.7	78.8
Estonia	341	342	355	99.6	96.1	2,628	2,964	3,209	8,214	9,262	10,028	88.7	81.9
*Irish Free State	...	614	623	...	...	..	13,792	13,284	...	43,099	41,513	...	...
Finland	1,087	1,163	1,126	93.5	96.6	14,357	13,424	14,893	44,864	41,951	46,540	106.9	96.4
France	8,234	8,101	8,384	101.6	98.2	93,929	98,228	104,137	293,525	306,960	325,425	95.6	90.2
Engl. and Wales	1,417	1,418	1,581	99.9	89.6	23,162	25,491	27,655	72,380	79,660	86,422	90.9	83.8
Scotland	829	827	847	100.2	97.8	14,381	15,254	15,026	44,940	47,670	46,956	94.3	95.7
*Northern Ireland	265	273	289	97.2	91.6	...	5,828	5,955	...	18,212	18,608	...	...
Greece	...	337	339	...	..	2,632	2,209	2,179	8,226	6,903	6,810	119 2	120.8
Hungary	521	502	581	103.7	89.7	5,432	5,421	6,120	16,975	16,941	19,126	100.2	88.8
*Italy	...	1,047	1,133	. .	...	...	11,358	12,236	...	35,495	38,237	...	...
Latvia	838	822	777	102 0	107.8	6,270	8,508	7,613	19,595	26,587	23,791	73.7	82.4
Lithuania	883	841	880	105 0	100 3	7,108	8,807	8,351	22,211	27,523	26,097	80.7	85.1
Luxemburg	66	66	70	100.0	94 5	940	984	981	2,938	3,075	3,067	95.5	95.8
Norway	210	215	236	97.7	89.3	3,880	4,010	3,904	12,126	12,532	12,201	96.8	99.4
Netherlands	318	316	350	100.7	90 9	5,787	6,202	6,346	18,085	19,380	19,830	93 3	91.2
Poland	5,569	5,521	5,434	100.9	102 5	57,982	57,275	54,153	181,192	178,982	169,226	101.2	107.1
*Portugal	. .	516	425	...	...	. .	2,131	2,634		6,660	6,356	...	...
Romania	1,986	1,970	2,178	100.8	91 2	18,676	13,089	16,928	58,361	40,904	52,899	142.7	110.3
Sweden	1,652	1,654	1,611	99 8	102.6	25,935	28,095	24,928	81,047	87,796	77,900	92.3	104.0
Switzerland	26	25	40	103.5	64.9	456	445	715	1,427	1,392	2,235	102.5	63.8
Czechoslovakia	1,888	1,898	2,000	99 5	94 4	26,860	22,644	30,655	83,938	70,763	95,795	118 6	87.6
Yugoslavia	890	919	920	96 9	96.8	7,342	6,126	6,717	22,942	19,144	20,992	119.8	109.3
Total Europe	§) *37,918*	*38,313*	*40,502*	*99.0*	*93.6*	*497,849*	*501,258*	*535,828*	*1,555,768*	*1,566,428*	*1,674,453*	*99.3*	*92.9*
*U S S R.	...	45,271	42,248	...	..	...	402,746	322,460	...	1,258,573	1,007,681	..	...
Canada	13,118	14,096	13,301	93.1	98 6	93,930	134,078	120,468	293,532	418,995	376,462	70.1	78.0
United States	33,213	39,831	37,556	83.4	88.4	252,512	382,369	315,201	789,100	1,194,902	985,003	66.0	80.1
Total North Amer.	*46,331*	*53,927*	*50 857*	*85.9*	*91.1*	*346,442*	*516,447*	*435,669*	*1 082,632*	*1,613,897*	*1,361,465*	*67.1*	*79.5*
*Syria and Leb	28	30	30	93.3	94.7	...	246	264	.	768	825	..	...
*Turkey	1,100	566	395	194.2	278.3	4) 5,266	5,114	3,333	4) 16,456	15,983	10,414	—	—
Algeria	477	434	516	110 0	92.5	3,704	2,332	3,525	11,574	7,288	11,014	158 8	105.1
French Morocco	74	70	73	104 9	101.6	434	340	580	1,357	1,062	1,811	127 8	74.9
*Tunisia	...	74	77	. .	...	...	397	534	. .	1,240	1,667	..	...
Total North Africa	*551*	*504*	*589*	*109.3*	*93 7*	*4,138*	*2,672*	*4,105*	*12,931*	*8,350*	*12,825*	*154.9*	*100.8*
Argentina	2,039	1,367	2,013	149.2	101.3	18,078	11,464	20,671	56,493	35,825	64,598	157.7	87.5
*Chile	...	244	197	...	...	...	2,135	1,858	...	6,672	5,806	...	...
*Uruguay	...	236	160	...	...	...	1,282	684	. .	4,007	2,139	...	...
*Un. of S. Afr. 5)	614	...	10) 493	...	124.6	2,388	2,532	11) 2,333	7,463	7,912	11) 7,291	94,3	102.4
*New Zealand 6)	296	363	372	81.4	79.6	...	1,321	1,317	...	4,128	4,115	...	...
Totals	§) **86,839**	**94,111**	**93,961**	**92.3**	**92.4**	**866,507**	**1,031,841**	**996,273**	**2,707,824**	**3,224,500**	**3,113,341**	**84.0**	**87.0**

(†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including Saar Territory with a very small production — 2) Rounded data, calculated on the basis of approximative percentage with respect to last year. — 3) Including spelt. — 4) Incomplete data — 5) Cultivation by Europeans only. — 6) Area includes that for chaff, hay, feeding-off, etc. 7) Year 1933/34. — 8) 1933/34 and 1934/35 — 9) Barley and meslin — 10) Average of four years. — 11) Average of three years.

Italy: The weather in the first half of November was variable. In the North and Centre sowings of winter cereals were almost completed and germination was generally good. In the South and Islands the rains favoured sowings. In the latter half of November the weather was generally good and at the end of that month sowings were almost everywhere at an end and germination was regular save in some areas that suffered from drought. Fieldmice are reported in some provinces of the North and Centre .

Latvia: In the first half of November temperatures were fairly high but subsequently fell below normal. Snow began to fall on 16 November but melted some days after. It recommenced toward the end of the month and covered large areas.

According to the most recent estimate production of meslin this year is about 1,879,900 centals (3,241,200 short tons) against 2,145,500 (3,699,200) in 1935 and 1,975 900 (3,406,700) on the average of the five years ending 1934; percentages 87.6 and 95.1.

Poland: The exceptionally cold and rainy autumn was unfavourable to winter sowings and their growth. For this reason 80 per cent. of the correspondents notify delay in the development of winter crops. The excessive moisture of the soil, unfavourable to sowing, was felt particularly in the southern and Silesian departments (about 85 per cent. of the correspondents) and was also felt in the departments of Kielce, Lublin, Nowogròdek and Volhynia (about 40 per cent. of the correspondents). The abundant and prolonged rains in the southern and Silesian departments made wheat sowings practically impossible, causing a considerable decrease in area sown to winter wheat.

According to the estimates of the Central Statistical Office, the area sown to wheat has decreased by 2.4 per cent , that sown to rye by 0.7 per cent and that to barley by 0.3 per cent in comparison with the figures for the autumn of 1935.

During the period between 15 October and 15 November, the rather mild weather favoured the development of winter cereals and crop condition had slightly improved. Crop condition of wheat and rye, quoted at 2.6 on 15 October, rose to 2.8 and barley improved from 2 9 to 3.0. On 15 November, 1935 crop condition was as follows wheat: 3.5; rye. 3 6; barley: 3.4. The condition of winter crops is therefore not so good as at the same time last year.

During the second half of November there was a sudden severe drop in the temperature and snow fell over a large area of the country, particularly in the north-east region. Cereals began the winter period in average condition, especially those which had been sown in good time.

In the southern and western departments as well as in those of Warsaw, Lublin and Volhynia, large quantities of field mice were notified, and they have considerably damaged the sowings.

Romania: In the first three weeks of November the weather was everywhere warm. Precipitation wsa plentiful in the northern half of the country while in the south it was less frequent. In the last week of November sown fell throughout the country but melted rapidly save in the north. At the beginning of December work was approaching completion and the weather already hindered continuation of autumn cultivation.

In the Danube valley, Dobrogea, southern Moldavia and Basarabia sowings were made in excellent conditions. In these districts the area sown to winter wheat, rye and barley is larger than last year. On the other hand in other parts of the country, where rain has been excessive, cultivation was hindered and the area sown to winter cereals is less than last year.

On the basis of the provisional figures available at the beginning of December the following areas had been sown:

	1936-37	1935-36	Average 1930-31/1934-35
		1,000 acres	
Winter wheat	7,253	(1) 7,720	(1) 7,211
Winter rye	941	(1) 1,021	(1) 910
Winter barley	180	(1) 197	(1) 210

(1) Final data.

In the areas where rain was not excessive winter sowings developed normally and entered the winter in vigorous condition. Where moisture was excessive growth was retarded. Sowings made towards the end of the season did not sprout regularly in some districts.

Yugoslavia. The variable and rather mild weather during November was favourable to sowings of winter cereals, which were completed towards the end of the month.

U. S. S. R.. At the beginning of the second half of November there was a fall in temperature, beginning in the northeast of the European territory and extending over other parts of that area with a gradual intensification until the end of the month. During this period there was more or less abundant precipitation and toward the end of the month the greater part of the European territory was covered with snow. On 1 December the snow-line ran from Odessa by way of Rostov-on-Don and Stalingrad to Saratov and the north.

At the beginning of December temperature rose considerably and toward the end of the first week of December the snow had melted in the southern and central regions and the snow-line had moved northward, running from Minsk through Kursk and Gorki. The following information is available regarding condition of winter cereals.

In Ukraina, according to a communication of the Director of the Hydrometeorological Service of the Ukrainian Commissariat of Agriculture published on 7 December, growth of winter cereals had been checked. The weather in November favoured winter cereals. The fall in temperature in the second half of November favoured the accumulation by the plants of the foodstuffs necessary for the winter.

Snow fell in the third decade of November throughout Ukraina and the fields were covered toward the end of the month, attaining in the Donets and Dnepropetrovsk districts, as well as in the Kharkov and Odessa areas a thickness of 16-20 cm.

Throughout Ukraina winter cereals had before the snow reached the stage of tillering and their condition was better than last year, thanks pricnipally to good preparation of the fields. In some districrts of the dnepropetrowsk region condition of winter cereals was very good.

In the Stalingrad region condition of wintercereals was good, according to information published on 9 December. The snow that fell toward the end of November, reaching a thickness of 6-7 cm., melted and sowings benefited from the good amount of moisture, which this year is larger than last and which guarantees the resistance of the crops during the period of drought that ordinarily makes itself felt in May.

Finally, in the Saratov area, according to information published on 21 November, the normal October temperature and the adequate amount of precipitation favoured development of winter cereals. Reserves of moisture are this year much larger than last and fully assure development of sowings. Condition of winter cereal crops is above average to good. All young crops are entering on the winter in good condition.

The area sown to winter crops up to 20 November is 92,869,000 acres against 92,614,000 at the corresponding date last year. This sown area represents 98 per cent of this year's and last year's plan.

Preparations for spring crops up to 20 November were carried out on 138,561,000 acres, 83 per cent. of the plan, against 135,327,000 acres or 81 per cent at the corresponding date last year.

Argentina: The latest monthly report of the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires issued on 18 November, contains the following information on the wheat crop.

Province of Buenos Aires. — Opportune rains and favourable weather improved wheat, especially in the West and Centre, but there is no improvement in the Southwest, where moisture is lacking.

Province of Córdoba. — Wheat has been mostly harvested and yields are good, except in the extreme South.

Province of Santa Fé. — Wheat is uniformly good, but rains in the South have delayed harvesting.

Province of Entre Rios. — The recent rains have greatly benefited wheat and good yields are being obtained.

Pampa region. — Wheat has improved, but yields, except in Hucal and Guatrache districts, are below normal. In the Provinces of Santiago and San Luis, conditions are generally poor.

Japan: Favoured by the weather, germination of winter wheat and winter barley proceeded normally.

Syria and Lebanon: Weather conditions during November were normal, the temperature was favourable, rains were light, and the winds calm. Field work for autumn sowings was carried out under satisfactory conditions.

Algeria: The first fortnight of November was generally speaking favoured by good weather. Heavy rain fell during the second part of the month, especially in the West, in Oran, and was sometimes accompanied by strong winds; the rainy weather, however, was not continuous and was interspersed with drier days; the temperature fell, frosts occurring in several places and snow fell on some of the heights.

These conditions were on the whole favourable to cultivation. Sowings were carried on actively throughout the month; they were hampered, however, on the heavy soil of Oran by the rain which fell during the last days of the month. Generally speaking, sowings are sprouting under good conditions.

The area of land sown to wheat seems to be at least as great as last year in the principal cereal-growing departments of Algeria. In Constantine, an increase is anticipated among European farmers, on account of the rise in price, whereas among native farmers a more or less considerable reduction of area is expected due to the scarcity of the preceding crop and to lack of seed; this will probably result in a slight increase in sowings of soft wheat and a decrease in those of hard wheat, which are much more important. Information is not to hand in this respect for Oran, which produces 60 per cent of the soft and 20 per cent of the hard wheat crops.

Kenya: Weather generally was dry and warm during October, with occasional heavy showers in some localities. Wheat is expected to be good in quality and quantity.

French Morocco: The weather was fine and dry from 15 October till 20 November; the rains which fell during the first fortnight of October did not have a noticeable effect on the new season's crops. In Eastern Morocco the drought had not broken by 25 November and was causing some anxiety; everywhere else, that is to say, practically throughout agricultural Morocco, copious rains have fallen; in some cases and especially in the central and northern regions, along the northern and central coastline, at Meknès and at Fez, the rain was exceedingly heavy. On 25 November the weather was still rainy in all the regions and fresh heavy rains were notified from Sousse.

Up to 20 November sowings were considerably delayed and even held up by the persistent drought; they were well advanced in Eastern Morocco but behindhand in the western region of the country, especially among European farmers, many of whom had not started sowing hard wheat. During the last ten days of the month however sowings had recommenced with great intensity as a consequence of the rains and thanks to the measures taken by the government (distribution of seeds and financial assistance). It is anticipated that the area sown to cereals will be normal. It is observed also that farmers have again begun to use manures, a practice which had been neglected during recent years as a result of unfavourable economic conditions

Generally speaking, it is considered officially that the agricultural season has opened under good conditions, both as regards favourable weather and the economic situation, which shows a noticeable improvement.

Union of South Africa: In October weather was favourable in the southwestern districts of the Cape Province, where good rains fell everywhere. Before the rains, however, wheat was damaged by lice and later by rust. Owing to the drought the winter grain crop elsewhere in the province was poorer than last year

In most districts of the Orange Free State good rains in October were just in time to save the wheat crops.

WORLD MAIZE PRODUCTION AND TRADE

I — General situation.

At such a short distance from the harvest in the northern hemisphere and at the beginning of the growing season in the southern hemisphere it seems opportune to give a summary of the tendencies in maize production, trade and prices during recent years.

The characteristics of present agricultural and commercial policy in regard to maize vary from country to country according to whether the country is an exporter or an importer of the cereal. The United States, which are the largest producer in the world, continue their policy of valorizing agricultural products by the restriction of area, a method applied also to maize The great exporting countries, Argentina, Romania, Yugoslavia and the Union of South Africa, are concerned with integrating and making more stable the economic basis of maize production, assuring the markets for their surpluses by commercial treaties and endeavouring to increase their internal consumption. All this is due to the tendencies of many countries that import fodder cereals to reduce as far as possible and even eliminate, for reasons connected with their general economic situation, imports of maize from foreign countries.

Of course, apart from these general tendencies, the actual trade and price situation is determined by the results of the past season as well as by other factors of international politics such as the war in Spain The latter country, though a producer of maize (with an average of 15.7 million centals (28.0 million bushels) in the five years 1930-34) is also an importer, having imported 3.1 million centals (5.6 million bushels) on the average of the five seasons ending 1934-35. Given the risks involved by the war a decrease in imports into Spain may be expected The war affects maize trade and prices not only, however, in this way but because the dangers connected with it disturb the normal flow of maritime trade in cereals to the largest market for bread and fodder cereals, namely, northwestern Europe, by increasing the costs of transport

II — AREA AND PRODUCTION OF MAIZE IN THE NORTHERN HEMISPHERE

The relative importance of the maize crop in the United States is so great that the data of area and production in that country in themselves practically characterize the season in the northern hemisphere. In consequence of the policy of reducing the maize area inaugurated in the United States in 1934 and of the catastrophic drought of that year, the area harvested underwent a rapid decline from 103.3 million acres in 1933 to only 87.8 million in 1934 In the two following years the figure of area showed a certain increase

I. – *Area of maize in the northern hemisphere*

	Average 1930-34	1935	1936
	(Millions of acres)		
United States, Canada	103.4	95.6	92.7
Danubian countries			
Romania, Yugoslavia, Hungary, Bulgaria	22.4	23.5	23.7
European maize-importing countries			
Austria, France, Czechoslovakia	1.4	1.4	1.4
Manchukuo, Turkey	3.5	4.0	4.2
Algeria French Morocco	0.9	1.0	1.1
General total	*131.6*	*125.5*	*123.1*

This recovery is explained by the fact that the United States were obliged to import from Argentina large quantities throughout the period from September 1934 to the time of sowing (March-April) in 1936

The second area in importance in the northern hemisphere, formed by the four countries of the Danube basin (Romania, Yugoslavia, Hungary and Bulgaria) showed a slight rise of 1 per cent in area in 1936 against 1935 and a fairly considerable one of 6 per cent with respect to the 1930-34 average. This increase is due in the first place to Romania and Yugoslavia Romania especially has increased its maize area continuously and rapidly in recent years, exceeding 12.5 million acres in 1936 In view of the relatively low unit-yields the Romanian Ministry of Agriculture is carrying on intensive propaganda amongst agriculturists for the improvement of technique in cultivation, harvesting and storage. There is no doubt that the increase in the area under maize in Romania, as also in Yugoslavia, is due in part to the difficulty experienced in these countries in marketing their surplus wheat and in part to the preference given to maize over other crops by the great mass of peasants in both countries.

The group of European countries producing maize but also importing it, of which the most important are Italy and France, are giving increasing attention to the crop in conformity with the policy of reducing imports from foreign countries.

In Asia also the maize crop is constantly acquiring increased importance. The increase in area in the last six years in the two countries for which 1936 data are available, Marchukuo and Turkey, has had a parallel in French Indo-China.

Algeria and French Morocco show a stationary area under maize.

On the whole the area under maize in the northern hemisphere has shown in 1936 a decrease, entirely due to the United States, with respect to 1935. With the exception of the United States and Canada, all the other countries of production show appreciable increases in area with respect to the average (5.9 per cent. in the seven European countries and 19.8 per cent. in the two Asiatic countries) or remain stationary (the African group). Given the outstanding importance of the United States, the 1936 area remains for the thirteen countries considered 8.5 million acres or 6.5 per cent. below the average.

The weather was very unfavourable in the United States, bad in Romania, fairly good in Austria and France, while in all the other countries considered it was excellent. The United States experienced also in 1936 an exceptionally severe drought that destroyed a large part of the maize crops. The extent of the disaster is gauged by this year's unit-yield of only 9.2 centals per acre (16.5 bushels per acre) per acre against 13.5 (24.1) in 1935 and 12.4 (22.2) on the average of the five years, even though amongst these is the very

II. — *Unit-yield of maize in the northern hemisphere.*

	Average 1930/34	1935	1936	Average 1930/34	1935	1936
	(Centals per acre)			(Bushels per acre)		
United States, Canada	12.4	13.5	9.2	22.2	24.1	16.5
Danubian countries.						
Romania, Yugoslavia, Hungary, Bulgaria	11.7	10.2	12.0	21.0	18.2	22.5
European maize-importing countries						
Austria, France, Czechoslovakia	14.5	13.9	15.6	25.9	24.9	27.9
Manchukuo, Turkey	13.4	13.2	13.9	24.0	23.6	24.8
Algeria, French Morocco	4.2	3.2	5.1	7.5	5.8	9.1
General total	*12.3*	*12.8*	*10.1*	*22.0*	*22.8*	*18.0*

low figure of 1934 The greater frequency of dry years in the United States leads to serious preoccupations in Government circles, which have regarded it as opportune to have further recourse to legislative measures (such, for example, as the Soil Conservation Act) considered technically advisable for the avoidance in the future as far as possible of repetitions of this evil.

At the beginning of the growing season (May-June) in all four Danubian countries crop prospects were excellent. In Yugoslavia, Hungary and Bulgaria they remained so until the harvest, while in Romania growth was hindered by drought just at the period of grain formation In the last-named country the weather also was not favourable at the time of harvest. In consequence Romania has had unit-yields below the average while the other three Danubian countries above indicated had very good crops Manchukuo and Turkey had also very good crops this year

On the whole the unit-yield for the thirteen countries under consideration, which is indicative also for the whole northern hemisphere, is around 10.1 centals per acre (18.0 bushels) against 12.8 (22 8) in 1935 and 12 3 (22.0) on the average of 1930-34

From the above facts it may be deduced that the total production of maize in the northern hemisphere this year is very low with respect to both 1935 and the average This is due principally to the exceptionally small crops in the United States To indicate its smallness it may be noted that the difference between the 1935 crop (which is practically the same as the 1930-34 average) and that of 1936 is about 432 5 million centals (772.4 millions bushels) an amount only a little less than the total production of 1936 in Argentina, Romania and Yugoslavia together In the last fifty years only the production of 1934 has been lower than this year's in the United States Thanks to Yugoslavia and Hungary particularly, the group of four Danubian countries on the other hand register a very large crop despite the small production of Romania. After this year's crop Hungary, which last season appeared amongst the importing countries, will again have a considerable export surplus.

III — *Production of maize in the northern hemisphere*

	Average 1930-34	1935	1936	Average 1930/34	1935	1936
	(Millions of centals)			(Millions of bushels)		
United States, Canada	1,286 1	1,290 5	856 9	2,296 7	2,304 4	1,530 2
Danubian countries						
Romania, Yugoslavia, Hungary, Bulgaria	263 4	238 9	299 7	470 2	426 6	535 1
European maize-importing countries						
Austria France, Czechoslovakia	19 6	19 3	22 3	35 1	34 5	39 7
Manchukuo, Turkey	46 8	53 8	57 9	83 5	96 1	103 5
Algeria, French Morocco	3 6	3 2	5 4	6 5	5 7	9 7
General total . .	*1,619.5*	*1,605 7*	*1,242.2*	*2,892 0*	*2,867.3*	*2,218 2*

Amongst the European countries both producing and importing maize, Italy has had a crop 20 per cent larger than that of 1935 and Czechoslovakia one at least 77.4 per cent larger.

On the whole the thirteen countries under consideration have a crop of 1,242.2 million centals (2,218.2 milions bushels) against 1,605.7 (2,867 3 in 1935 and 1,619.5 (2,892.0) on the average in 1930-34 (77 4 per cent and 76 7 per cent respectively)

Further modifications and the addition of other countries for which data are still lacking cannot substantially modify the picture already obtained. It seems permissible to state that *grosso modo* the production of the northern hemisphere in 1936 will be about 23-24 per cent. smaller than that in 1935 and than the average

III. — WORLD TRADE IN MAIZE.

The world trade in this cereal is dominated at the present time by the fact that the United States will be heavy importers of maize also in the season from November 1936 to October 1937. A rather important factor in the trade is that Hungary, which last season absorbed a large quantity from abroad, will this year figure amongst the exporters

IV. — *Excess of imports over exports of maize in the United States and Hungary in the last two commercial seasons (1 November-31 October)*

(Thousands of centals)

MONTHS	1934/35			1935/36		
	United States	Hungary	Total	United States	Hungary	Total
November	165	— 22	143	919	968	1,887
December	593	— 15	578	1 166	1,583	2,749
January	1 038	— 7	1 031	1 038	1 239	2,277
February	1,003	— 11	992	309	346	655
March	1,839	— 29	1 810	646	309	955
April	800	64	864	582	620	1,202
May	1,695	152	1,847	483	1,027	1 510
June	3,426	245	3,671	— 86	496	410
July	3 159	419	3,578	686	238	924
August	4 764	589	5 353	836	251	1 087
September	1,671	789	2 460	2,319	123	2,442
October	2 621	692	3 313	4 535	68	4 603
TOTAL	*22,774*	*2,866*	*25 640*	*13 433*	*7 268*	*20 701*

The consumption of maize in the United States varies in accordance with so many factors (including numbers of livestock, results of the the barley, rye and oats crops, proportion of wheat of poor quality, relation between prices of various feeds, condition of meadows and pastures) that any forecast of the quantity to be imported would be liable to lead to erroneous conclusions. The last two seasons are instructive in this respect. In fact, while in the twelve months following the disastrous crop of 1934, when only 771.2 million centals (1,377.1 million bushels) were harvested, there was a net import of 22.8 million centals (40.7 million bushels), in the following twelve months, with the fairly large crop of 1935, amounting to 1,286.1 million centals (2,296.7 million bushels) there was a further import of 13.4 million centals (24 0 million bushels). It is known that the United States began to import large quantities as soon as the catastrophic crop results of that year became certain. In September and October of this year there had already been imported 6.9 million centals (12 2 million bushels. It is very probable that imports will continue to be large throughout the winter months so that Argentine stocks will find an easy market. As regards Hungary this year's production, which amounts to 57 3 million centals (102.4 million bushels), will taking due account of the fact that it follows the disastrous crop of 31.3 million centals (55.8 million bushels) in 1935, permit an export of maize, whether in grain or transformed into meat and fats, of 5.6-6 6 million centals (9.8-11.8 million bushels).

The largest exporter of maize in the world, Argentina, had still on 1 November this year about 82.6 million centals (147 5 million bushels) available for export. This amount, distributed over the six months that remain till the new Argentine crop, would give a monthly supply of 13 8 million centals (24.6 million bushels). This monthly quota is fairly high and has actually been exceeded only in the record season 1931-32 However it may be considered in the present season as a quota easily marketed, since the United States now appear amongst the largest maize importers, which was not the case in the seasons prior to 1934-35. The present favourable market situation of

V. — *Maize production and export of Argentina*

(Thousands of centals)

Crop year and commercial season (May April)	Production in April-May of the first year indicated	Export						
		in the first six months after the harvest (May October)		in the remaining six months up to the end of the season (November April)		Total for the season		
						Absolute data		% production = 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1936 (1936/37)	219,793	94 155	15 692	1) 82,621	(13 770)			
1935 (1935/36)	253,092	93,364	15 561	77,098	12,850	170 462	14,205	67 4
Average 1930 34) (1930/31 1934 35)	*170,722*	*80,749*	*13 458*	*62 054*	*10,342*	*142,803*	*11 900*	*83 6*
1934 (1934/35)	143,874	68 557	11,426	50,078	8,346	118,635	9,886	82 5
1933 (1933/34)	149 948	61,262	10,210	59,613	9,935	120,875	10,073	80.6
1932 (1932/33)	167,627	86,525	14,421	42,922	7,154	129,447	10,787	77 2
1931 (1931/32)	235,014	131,411	21 902	89 563	14,927	220,974	18,414	94 0
1930 (1930/31)	157,148	55,991	9,332	68,092	11,349	124,083	10,340	79 0
Average 1925 29 (1925/26 1929/30)	*155,993*	*77,879*	*12,980*	*47,172*	*7,862*	*125,051*	*10,421*	*80 2*

1) Quantity exportable on 1 November 1936 calculated taking inte account the export surpluses estimated by the Argentine Government on 10 October and the exports in October

Argentine maize has not, however, led the Argentine Government to lose sight of the occasional character of United States maize imports. There are serious proposals in Argentina to increase consumption of the cereal within the country itself, not only for livestock (especially pigs) but for industrial purposes in the narrower sense, such as alcohol, oil, sugar, cellulose, glycerine and dextrine production. It is probable that Argentina will export in the present season a quantity of maize at least as large as the very large one of last season 170.5 million centals (304.4 million bushels) but at prices considerably higher, which will mean a great relief to the agriculture and general economic situation of the country.

In the Danubian season that opened on 1 November the four Danubian countries, Romania, Yugoslavia, Hungary and Bulgaria, in this case all four, may take a larger share in the world export trade. The largest quantity theoretically available for export is in Yugoslavia, which has a production of 112.6 million centals (201.0 million bushels), almost equivalent to the record of September-October 1934 113.5 million centals (202.7 million bushels). For this country also it is not easy to calculate the probable consumption and therefore supplies available for export. This depends largely on the results of the other cereal crops and on the price relation between maize and wheat, as well as on that between maize and pigs. The course of the last five commercial seasons in this country leads to the belief that, with a production of 70.5 million centals (126.0 million bushels) in 1931, Yugoslavia exported 1.8 million centals (3.1 million bushels) in the following twelve months, while after the record crop of 113.5 million centals (202 7) it exported only 12.6 million centals (22.4).

VI. — *Maize production and net export of Danubian countries*
(Romania, Yugoslavia, Hungary and Bulgaria)

(Thousands of centals)

Crop year and commercial season (November October)	Production in Sept -Oct of the first year indicated	Net export						
		in the first six months after the harvest (November April)		in the remaining six months up to the end of the season (May October)		Total for the season		
						Absolute data		% production 100
		Total	Monthly average	Total	Monthly average	Total	Monthly average	
1936 (1936/37)	299,660							
1935 (1935/36)	238,869	7,002	1,167	1) 8,122	1,354	1) 15 124	1,260	6 3
Average 1930 34 (1930/31 1934/35)	*263,345*	*20,367*	*3,394*	*13,145*	*2,191*	*33,512*	*2,792*	*12 7*
1934 (1934/35)	284,139	13,971	2,328	7,392	1,232	21,363	1,780	7 5
1933 (1933/34)	240,146	14,791	2,465	10,763	1 794	25 554	2 129	10 6
1932 (1932/33)	310,952	32,730	5,455	23,385	3,897	56,115	4,676	18 0
1931 (1931 32)	257,351	23,715	3,952	14,376	2,396	38,091	3,174	14 8
1930 (1930/31)	224,138	16,627	2,771	9,811	1,635	26,438	2,203	11 8
Average 1925 29 (1925/26 1929/30)	*221,594*	*18,530*	*3,088*	*12,954*	*2,158*	*31,484*	*2,624*	*14 2*

1) The export from Romania in October 1936 has been calculated

The lowest consumption was 65.3 million centals (116.6) in 1935-36 and the highest 101.0 million centals (180.3)in 1934-35. As this season the production of straw cereals was also very good the theoretical possibility of a very large export from Yugoslavia may be regarded as likely to eventuate. An export of 44.1 million centals (78.7), whether as grain or transformed into meat and fats, is officially considered possible. It is in any case certain that there are good reserves available in Yugoslavia to meet world demand.

Romanian production is estimated provisionally at 110.2 million centals (196.8), which may allow an export of from 15 4-17.6 million centals (27.6-31.5) as grain.

As regards the possible contribution of the Danubian lands to world export it should be noted that the total production of the four countries this year, amounting to 299.7 million centals (535.1), is the largest of the last decade, if the production of 1932, namely, 311.0 million centals (555.3),is excepted. Allowing an export from the four Danubian countries in the season from 1 November 1936 to 31 October 1937 amounting to the same proportion of their crops as on the five-year average from 1930-31 to 1934-35, their theoretical contribution would be about 37.5 million centals (66 9).

It may be expected that, while large quantities of Argentine maize will be absorbed in the next few months by extra-European countries (the United States, Canada and Japan), the Danubian countries will contribute effectively to the supply of Western Europe.

To enable a judgment to be formed concerning the probable course of world trade in maize in the current season it is necessary to examine the import possibilities in the principal maize-importing countries. For this purpose the nineteen principal maize-importing countries have been taken into consideration, as in these articles in preceding years and in the monograph on the maize trade published by the International Institute of Agriculture 1). Dividing these countries into two groups, those importing but not producing maize and those both importing and producing maize, the production and trade have been examined for maize, barley and oats in the last decade. In table VII the production of these three cereals is compared with the corresponding figures for the preceding eleven seasons. In the first place it may be observed that the production of maize in the group of producing countries is rather larger than the 1930-34 average and very much larger than that of 1935, approaching that of 1932. The production is good, due especially to Italy, the most important country of the group.

The production of barley and oats on the other hand is for the two groups together considerably smaller than the average and that of 1935. In consequence of this small production the demand for maize in these countries will approximate to or possibly exceed the 1930-34 average. From a comparison of the 1925-29 and 1930-34 averages it appears at first sight that in these nineteen maize-importing countries during the last decade the production of the three cereals has not undergone any great change but that there is a slight

---

1) Maize in world trade A statistical monograph Rome 1932.

VII. — *Production of maize, barley and oats, during the last ten years in the 19 principal maize-importing countries, by groups of countries* 1).

(Millions of centals).

Products and groups of countries	Average 1925-29	1930	1931	1932	1933	1934	Average 1930-34	1935	1936
Maize:									
I group 1)	—	—	—	—	—	—	—	—	—
II group 1)	103.2	122.6	99.3	119.8	107.5	126.2	115.1	109.9	119.1
Total . .	*103.2*	*122.6*	*99.3*	*119.8*	*107.5*	*126.2*	*115.1*	*109.9*	*119.1*
Barley.									
I group 1)	122.1	119.1	119.6	125.3	126.1	125.2	123.1	131.0	130.8
II group 1)	235.2	246.3	207.4	245.7	216.4	222.0	227.6	218.9	196.5
Total . . .	*357.3*	*365.4*	*327.0*	*371.0*	*342.5*	*347.2*	*350.7*	*349.9*	*327.3*
Oats:									
I group 1)	287.6	260.3	263.3	290.9	291.4	256.3	272.4	258.5	253.6
II group 1)	371.4	361.8	332.0	376.4	368.8	335.2	354.8	354.0	314.8
Total . . .	*659.0*	*622.1*	*595.3*	*667.3*	*660.2*	*591.5*	*627.2*	*612.5*	*568.4*

1) For countries contained in the two groups see table IX.

increase in that of maize while barley and especially oats show a downward tendency.

On the basis of the following tables (VIII and IX) which show the net imports of barley, oats and maize in the nineteen countries, it may be calculated that the apparent consumption of these three cereals, which, on the average of 1930-34, amounts to 401.7 million centals (836.7) of barley 645.4 million centals (2,017.3) of oats and 319.0 million bushels (569.7) of maize.

Taking as basis this consumption also for 1936 there should be added to the internal production of these countries the import from abroad of 74.4 million centals (154.8) of barley, 77.0 million centals (241.2) of oats (up to 31 July 1937) and 199.9 million centals (357.1) of maize (up to 31 October 1937). These relatively high figures, especially for barley and oats, probably cannot actually be reached in the current season, given the policy of restricting imports in several countries. However, these theoretical figures are enough to indicate that in the countries under consideration there is an average import demand for maize higher than the averages for barley and oats. Examination of the averages for the quinquennia ending 1929-30 and 1934-35 respectively shows that in the last decade as a whole the imports of barley and of oats have not undergone any very large changes and that in consequence, in relation to the similar circumstance for production of barley and of oats, it may be stated that consumption of these two cereals has not undergone any sudden or large change. Examining the changes in imports in the two groups it is seen that there has been a heavy fall in imports of barley into the group of countries not producing maize while imports of oats have been stationary. These countries are in fact intensifying their cultivation of barley

IX. — *Net imports of maize of the 19 principal maize importing countries during the last eleven Argentine commercial years (May-April) and during the first six months of this year.*

(Thousands of centals).

COUNTRIES AND GROUPS OF COUNTRIES	AVERAGE 1925/26 1929/30			AVERAGE 1930/31-1934/35			1935/36			1936/37
	During the first six months following the Argentine harvest (May Oct)	During the remaining six months up to end of year (Nov.-April)	Total for year	During the first six months frollowing the Argentine harvest (May-Oct)	During the remaining six months up to end of year (Nov April)	Total for year	During the first six months following the Argentine harvest (May Oct)	During the remaining six months up to end of year (Nov. April)	Total of year	During the first six months following the Argentine harvest (May-Oct.)
					I. — Countries which import but do not produce maize					
1. – Great Britain and N Ireland	17,840	18,653	36,493	29,758	29,637	59,395	34,734	41,870	76.604	35,739
2. – Netherlands	11,405	12,948	24,353	13,922	15,474	29,396	9,242	10,931	20,173	8,755
3. – Germany	12,114	11,707	23,821	5,390	5,240	10,630	2,392	2,586	4,978	1,590
4. – Belgo-Luxemburg Union	6,830	6,274	13,104	8,891	7,584	16,475	8,830	9,969	18,799	8,924
5. – Denmark	5,904	4,744	10,648	7,200	5,496	12,696	3,208	2,090	5,298	2,434
6. – Irish Free State	4,343	3,329	7,672	5,688	3,541	9,229	3,823	2,169	5,992	2,683
7. – Norway	1,391	1,111	2,502	1,885	1,543	3,428	1,784	1,281	3,065	1,479
8. – Sweden	1,594	1,254	2,848	2,815	2,022	4,837	626	677	1,303	745
Total of 1st group	*61,421*	*60,020*	*121,441*	*75,549*	*70,537*	*146,086*	*64,639*	*71,573*	*136,212*	*62,349*
					II. — Countries which import and produce maize					
1. – Italy	5,822	7,039	12,861	5,315	2,579	7,894	1) 3,261	...	...	...
2. – France	6,852	8,166	15,018	10,058	9,881	19,939	4,661	8,309	12,970	6,989
3. – Spain	3,900	3,569	7,469	1,682	1,451	3,133	628	1,334	1,962	3) 148
4. – Czechoslovakia	3,243	3,483	6,726	4,151	2,787	6,938	1,268	946	2,214	1,301
5. – Portugal	670	631	1,301	833	540	1,373	148	201	349	1) 146
6. – Greece	247	280	527	236	961	1,197	487	789	1,276	4) 681
7. – Austria	1,746	1,909	3,655	4,542	5,216	9,758	3,629	3,673	7,302	1) 2,994
8. – Poland	789	414	1,203	126	35	161	0	0	0	0
9. – Switzerland	1,457	1,437	2,894	1,343	1,228	2,571	996	1,056	2,052	686
10. – Canada	3,283	4,151	7,434	2,011	2,207	4,218	2,617	1,270	3,887	3,393
11. – Japan	293	456	749	337	324	661	1,779	2,824	4,603	4) 2,518
Total of 2nd group	*28,302*	*31,535*	*59,837*	*30,634*	*27,209*	*57,843*	2) *16,213*	2) *20,402*	2) *36,615*	...
GENERAL TOTAL	**89,723**	**91,555**	**181,278**	**106,183**	**97,746**	**203,929**	2) **80,852**	2) **91,975**	2) **172,827**	...

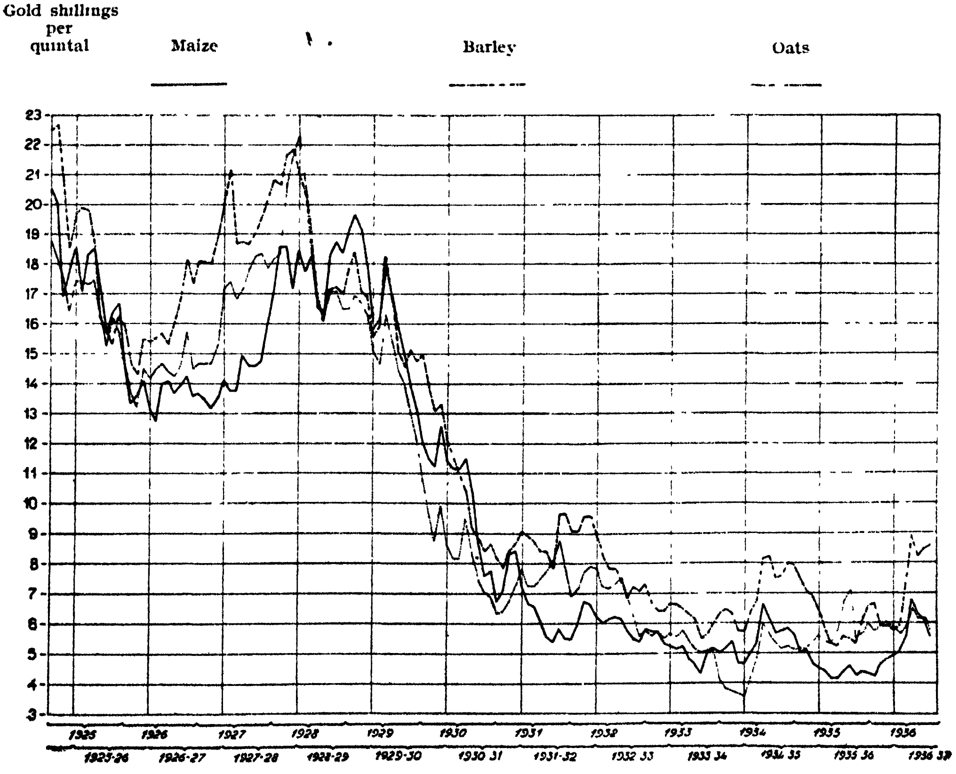
1) Five months. — 2) Not including Italy. — 3) 2 months — 4) 4 months

particularly have increased their imports. It is natural that in this group of countries themselves producing maize imports are largely related to production. In 1935-36 and the current season there has been a heavy import of maize into Canada and Japan.

IV. — MAIZE PRICES

Some idea of the course of maize prices in recent months may be obtained from the quotations of the Liverpool-London market, which absorbs throughout the year larger quantities of this cereal than any other European market. The price on this market may be taken as a barometer for all others concerned with exports and imports of maize. Chicago is another great market, on which prices for the whole United States are formed; it is somewhat independent of the world market in years when the United States do not import and its quotations are also frequently discordant with respect to those of Liverpool-London. In the last two seasons on the other hand a certain parallelism has been observed between the quotations on the two markets, just for the reason that the United States have become importers of maize. In connection par-

Comparison between the prices of La Plata Yellow maize, Canadien No. 3 barley and La Plata oats at Liverpool-London in 1925-36.



ticularly with the price of other feeds and especially, with that of barley and oats, maize began to show an upward tendency last March. On Liverpool-London La Plata Yellow rose without interruption from the very low level of 4s 3d gold per quintal in February to a maximum of 6s 9d in August, subsequently to fall slightly to 6s 4d in September, 6s 1d in October and 5s 7d in November. The first quotations of December maintain the October level. From February to August there was an increase of 58.8 per cent. The November quotation showed a further rise of 31.4 per cent. on that of February.

In the above period the quotation of No. 3 Yellow on the Chicago market showed a course analogous to that on Liverpool-London but even more accentuated, rising from 60 cents per 56 lb. in March to 113 cents in August and September and then falling slightly to 108 cents in October and in November. Between the minimum of March and the maximum of August-September there was a rise of 88.3 per cent.

In order to compare the level reached by maize in recent months with that of a series of years and also to see the course of prices of barley and oats, which frequently replace maize, all quotations for these three cereals on the London-Liverpool market from 1 May 1925 have been transformed in the diagram on the following page to gold shillings per quintal The diagram shows the striking resemblance of the curve for maize from May (the beginning of the Argentine maize season) to October this year to that from May to October in 1934. This is due to analogous causes, largely connected with the two disastrous maize crops in the United States in these years. In both periods considered the divergence between prices of barley and of maize remains almost the same. This indicates that there are also marked similarities in the relation between world supply and demand in the cases of both barley and maize in 1934 and 1936.

V. DESMIREANU.

MAIZE

Surinam· Only the maize crops in the elevated regions were uncut during the third quarter of 1936 and the weather was very favourable.

French Indo-China Three-month maize was in full growth at the end of October in certain Tonkin provinces and did not seem to have suffered excessively from the drought which prevailed throughout the month. In Annam crops were suffering from drought in certain districts while in others growth was satisfactory at the end of October. In Cambodia at the end of October no sowings had been effected on the hillsides for the dry season crop, the new season will not begin in Cochin-China till December, the last crops having been harvested at the end of September.

Java and Madura: The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the maize area —

	1936 acres	1935 acres
Area harvested in October.	385,000	356,100
Area harvested from 1 January to 31 October.	4,801,800	4,601,700
Area of standing crops at the end of October.	1,698,600	1,738,400

Maize.

COUNTRIES	AREA					PRODUCTION							
	1936 — 1936/1937	1935 — 1935/1936	Aver. 1930 to 1934 — 1930/1931 to 1934/1935	% 1936 — 1936/37		1936 — 1936/1937	1935 — 1935/1936	Average 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/1937	1935 — 1935/1936	Average 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37	
				1935 — 1935/1936 = 100	Average = 100							1935 — 1935/1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels				
Austria .	152	162	156	94.0	97.7	2,978	2,813	2,960	5,319	5,023	5,286	105.9	100.6
Bulgaria	1,486	1,775	1,739	83.7	85.4	19,536	22,244	18,921	34,887	39,722	33,787	87.8	103.3
Spain . . .	...	1,086	1,080	...	...	.	16,215	15,628	. .	28,956	27,906	...	...
France . . .	869	853	840	101.8	103.4	12,343	12,622	11,235	22,041	22,540	20,063	97.8	109.9
Greece . .	...	551	611	...	...	...	4,221	4,534	. .	7,538	8,096	...	...
Hungary	2,832	2,843	2,765	99.6	102.5	57,335	31,269	40,848	102,385	55,838	72,944	183.4	140.4
Italy . 1)	...	3,282	3,293	...	...	3) 66,800	50,543	56,426	3) 119,300	90,255	100,761	120.0	110.3
Italy . 2)	...	359	323	.	...		5,064	4,155		9,043	7,420		
Poland . .	219	230	233	95.4	94.2	...	2,788	1,875	...	4,978	3,349	..	...
Romania . .	12,999	12,773	11,757	101.8	110 6	110,231	118,591	114,538	196,842	211,771	204,533	93.0	96.2
Switzerland.	...	2	2	...	...	. .	53	65	...	94	116	...	...
Czecho- slovakia 4)	211	193	6) 218	109.5	96.9	4,163	2,581	6) 3,539	7,433	4,609	6) 6,319	161.3	117.6
Czecho- slovakia 5)	192	179	6) 141	107.4	136.7	2,760	1,320	6) 1,909	4,928	2,357	6) 3,409	209.1	144.6
Yugoslavia	7) 6,450	7) 6,109	7) 6,178	105.6	104.4	112,555	66,765	89,037	200,992	119,224	158,995	168.6	126.4
Total Europe	...	*30,397*	*29,336*	. .	.	. .	*337,089*	*365,670*	...	*601,848*	*652,984*	...	...
U S S R. .	. .	7,998	9,418	...	...	...	61,509	85,891	...	109,838	153,377	...	...
Canada .	164	168	144	97 8	1'3.7	3,324	4,348	3,157	5,935	7,765	5,637	76 4	105.3
United States	92,500	95,441	103,284	96.9	89,6	853,608	1,286,135	1,282,974	1,524,300	2,296,669	2,291,025	66.4	66.5
Mexico. .	...	7,121	7,840	..	...	...	36,853	40,284	. .	65,810	71,936	...	...
Total N. Am.	..	*102,730*	*111,268*	...	. .	...	*1,327,336*	*1,326,415*	. .	*2,370 244*	*2,368,598*	...	...
Manchukuo.	3,136	3,053	2,519	102.7	124.5	46,782	43,652	36,048	83,540	77,950	64,371	107.2	129.8
Syria & Leb	..	80	62	...	...	..	831	610	...	1,483	1,090	...	...
Turkey. . .	1,031	1,012	959	101.9	107.5	8) 11,154	10,177	10,716	8) 19,917	18,173	19,135	—	—
Total Asia	...	*4,145*	*3,540*	...	...	...	*54,660*	*47,374*	..	*97,606*	*84,596*	...	...
Algeria . .	15	15	22	95.8	66.3	132	88	141	236	158	251	149.6	94.0
Egypt . . .	...	1,635	1,881	...	...	...	37,236	38,542	..	66,494	68,825	...	...
Eritrea . .	...	10	26	...	...	...	79	227	...	142	406	...	...
Kenya 9). .	...	129	152	...	...	...	2,300	2,107	...	4,108	3,763	...	...
French Morocco . . .	1,043	959	848	108.7	122.9	5,278	3,072	3,496	9,425	5,486	6,242	171.8	151.0
Tunisia 10)	.	44	47	...	...	...	132	130	...	236	232	. .	...
Total N. Afr.	.	*2,792*	*2,976*	...	...	...	*42,907*	*44,643*	...	*76,624*	*79,719*	. .	. .
Argentina	...	11) 18,854	11) 15,250	...	...	...	219,793	189,911	...	392,489	339,127	...	...
*Un. of S. Afr.	...	...	9) 12) 5,927	...	...	...	29,597	34,425	...	52,852	61,474	...	. .
TOTALS (a)	...	**158,918**	**162,370**	...	...	..	**1,981,785**	**1,974,013**	...	**3,538,911**	**3,525,024**	...	...
TOTALS (b)	...	**166,916**	**171,788**	...	...	...	**2,043,294**	**2,059,904**	...	**3,648,749**	**3,678,401**	...	...

* Not included in the total — *a*) Not including U. S. S R — *b*) Including U S S R — 1) Spring crop (*maggengo*). — 2) Summer crop (*cinquantino*). — 3) Rounded figure, based on approximate percentage of 1935 figure — 4) Crop grown alone — 5) Mixed crop. — 6) 1934 only — 7) Area harvested — 8) 37 vilayets only. — 9) Cultivation by Europeans — 10) Maize and sorghum. — 11) Area sown — 12) Years 1933/34 and 1934/35.

Madagascar: The maize crop for 1935-36 was abundant as a result of the good yields obtained. Exports rose from 220,000 centals (400,000 bushels 56 lb.) to 350,000 centals (630,000 bushels 56 lb.).

Union of South Africa: In Natal good spring rains fell over the greater part of the area and most farmers were busy in October ploughing, though more rain was needed to allow them to continue.

In those districts of the Transvaal that had already had good rains larger areas than ever before were sown to maize in October and the others were planning to grow it on a very large scale this season Toward the end of October it was again dry over the whole province and much more rain was necessary to allow the maize to germinate properly and the farmers to continue ploughing

RICE

Italy: Harvesting was almost completed by the end of November with satisfactory results

Surinam: Weather conditions were favourable to rice during the third quarter of 1936 and the yield was greater than that for the same period of the preceding year.

Formosa The condition of the second rice crop is for the most part fairly satisfactory.

India The second forecast of rice area for 1936 37, referring to the end of October gave for Burma as a whole a sown area of 12,502,400 acres, an increase of 51,700 acres on the corresponding figure of last year The area likely to mature was estimated at 12,281,500 acres, an increase of 47,100 acres on the corresponding figure In Lower Burma alone the second estimate of area sown is 9,720,200 acres, an increase of 52,800 on the corresponding figure of last season and that of area to mature 9,582,400 acres, an increase of 7,900 acres

In Lower Burma the estimate of area destroyed is larger than that given in the first forecast, a decrease in the estimate for Insein having been counterbalanced by an increase in that for Hanthawaddy, due to damage by heavy rain early in October Though the outlook was still not unfavourable, prospects were by no means so bright as at the end of September. It was too early, however, to estimate the

Rice

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1936/37	1935/36	Average 1930-31 to 1934/35	% 1936/37		1936-37	1935-36	Average 1930-31 to 1934-35	1936-37	1935/36	Average 1930/31 to 1934-35	% 1936-37	
				1935/1936 = 100	Average = 100							1935-1936 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 45 lb				
Bulgaria	15	19	18	81.2	85.0	315	380	342	699	844	761	82.8	91.9
Italy 1)		338	343			15,222	13,966	14,698	33,828	31,036	32,662	109.0	103.6
Yugoslavia	8	8	5	109.7	157.8		97	65		215	144		
United States	935	793	887	117.9	105.4	20,313	17,159	18,707	45,100	38,132	41,572	118.4	108.6
India 2)	77,786	75,698	75,579	102.8	102.9								
Japan	7,855	7,866	7,887	99.9	99.6	271,636	235,097	249,718	603,623	522,427	554,917	115.5	108.8
Siam 3)	6,865	7,526		91.2									
Taiwan 4)	745	733	692	101.7	107.7	19,579	17,256	15,775	43,509	38,346	35,055	113.5	124.1
Turkey	88	111	71	79.0	123.7	4) 2,452	1,979	1,005	5) 5,448	4,399	2,233	—	—

1) Rounded figure, based on approximate percentage of 1935 figure — 2) First estimate — 3) Area sown up to end of October in 60 provinces — 4) First crop — 5) 37 vilayets only

effect on outturns of the absence of rain in the latter half of October. The damage may have been largely repaired by local showers early in November.

In Upper Burma the area estimated as sown was fully 200,000 acres lower than the average actuals of the last five years, due to unfavourable rainfall in the dry zone. Since the first forecast the area estimated as likely to mature had been reduced. The outlook in the wet zone and in areas irrigated by Government canals was favourable. In most of the dry zone districts prospects were poor and more rain was badly needed.

In Bengal there was light rain in the week ending 18 November but the three subsequent weeks were dry. Standing crops were thriving, harvesting of winter padi was progressing and prospects were satisfactory

Bihar had only scanty rains after 23 November Harvesting of winter padi began in the middle of that month. Crop condition was good In Orissa weather was similar. Padi, of which the harvesting began in mid-November, was reported on 7 December to be in exceptionally good condition Assam had seasonable weather and on 14 December crop condition was reported fair

In the Central Provinces, where heavy rain and hail occurred in Nagpur and Berar in the week ending 21 November but subsequently gave place to clear, dry weather, harvesting was progressing and threshing had by 5 December begun locally.

In Madras on 12 December crop condition was fair A cyclone had previously caused damage in Guntur Transplanting and sowing were proceeding

French Indo-China In Tonkin, harvesting of the early crops of tenth-month rice was almost finished by the end of October and has given a fair yield, but the extreme drought which prevailed throughout October hampered the development and particularly the flowering of the late crops, and their yield is expected to be mediocre, generally speaking, the tenth-month crop has not been very satisfactory In Annam, the eighth-month crop has given satisfactory results on the whole — 19 centals (42 bushels) to 22 centals (50 bushels) -- per acre in general and 28 centals (63 bushels) for certain varieties in one district of Southern Annam), the appearance of tenth- and twelfth-month rice was irregular at the end of October, good in the flooded areas of Northern Annam and mediocre in the other areas on account of the drought, good in Central Annam, variable in South Annam In Cochin-China, crop condition and transplanting seemed normal, generally speaking, the rains at the beginning of October had allowed the crops to recover in the regions which had suffered from drought during September In Cambodia work was pushed forward rapidly in October thanks to the rains which fell at the beginning of the month

Preparation of nurseries and sowings of early rice for the 1936-37 season had begun during October in Tonkin and Annam

Java and Madura The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the rice area -

	1936 acres	1935 acres
Area harvested in October—		
Wet padi	311,600	329,000
Dry padi	1,500	2,200
Area harvested 1 January to 31 October:—		
Wet padi	8,214,900	7,976,400
Dry padi	972,400	949,900
Area of standing crop at the end of October —		
Wet padi	733,400	788,800
Dry padi	238,200	223,400

Madagascar: Rice production for the season 1935-36 showed an excess over that of the preceding years Almost all the yield will be absorbed by the regions on the eastern and north-western coast for, in spite of the efforts made to extend cultivation, production does not yet suffice for internal needs. Exportation, therefore, though greater than last year, is still not very great for the present trade year; there is, however, an increase in exports of high-grade rice.

POTATOES

Countries	Area					Production							
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936	
				1935 = 100	Average = 100							1935 = 100	Average = 100
	1,000 acres					1,000 centals			1,000 bushels of 60 lbs.				
Germany s)	332	330	600	100.5	55.4	35,928	35,739	63,700	59,878	59,564	106,164	100.5	56.4
Germany t)	6,569	6,472	6,469	101.5	101.5	985,335	875,452	945,291	1,642,192	1,459,057	1,575,454	112.6	104.2
Austria . .	502	494	490	101.5	102.5	55,103	52,746	57,939	91,836	87,908	96,562	104 5	95.1
*Belgium . .	402	403	413	99.8	97.4	...	66,270	79,056	...	110,448	131,757	...	...
Bulgaria . .	35	36	34	97.6	104.4	2,667	2,663	1,590	4,445	4,439	2,650	100.1	167.8
Denmark. .	186	186	175	100.1	106.5	28,219	27,170	25,827	47,031	45,282	43,044	103.9	109.3
*Spain . . .	...	1,060	1 036	...	...	...	106,632	106,667	...	177,716	177,775	...	...
Estonia . .	183	182	170	100.6	107.9	21,483	19,681	19,143	35,804	32,800	31,905	109.2	112.2
*Irish Free State . . .	..	336	345	...	...	...	57,731	55,223	...	96,218	92,039	...	...
Finland . .	210	204	191	102.9	109.8	29,158	27,978	23,417	48,596	46,629	39,028	104 2	124.5
France . .	3,461	3,490	3.496	99.2	99.0	330,432	315,700	344,723	550.709	526.156	574,527	104.7	95 9
England and Wales. . .	456	463	476	98.5	95.7	59,427	64,490	69,091	99,045	107,483	115,151	92.2	86.0
Scotland . .	133	132	139	101.1	96.0	22,176	19,846	21,522	36,960	33,077	35,870	111.7	103.0
*Northern Ireland . .	132	129	138	102.1	95.7	...	19,862	20,392	..	33,103	33,987	...	...
*Greece . . .	...	47	38	...	...	...	2,297	1,865	...	3,829	3,108	...	...
Hungary . .	726	695	711	104.5	102.2	58,689	30,703	38,893	97,813	51,171	64,820	191.2	150.9
Italy . .	...	1,004	975	...	. .	1) 56,200	47,600	52,189	1) 93,700	79,332	86,980	118.0	107.7
Latvia . .	296	306	251	96 8	118.0	35,527	32,213	27,887	59,210	53,688	46,477	110 3	127.4
Lithuania .	442	435	423	101.5	104.5	44,806	39,105	44,057	74,675	65,174	73,427	114.6	101.7
Luxemburg.	41	41	40	99.8	100.1	4,411	3,196	4,236	7,352	5,326	7,060	138.0	104.1
Malta . . .	10	8	7	123 6	137.5	525	392	574	875	654	956	133.8	91.5
Norway . .	127	123	119	104.0	106.9	22,380	20,205	19,192	37,299	33,674	31,986	110.8	116.6
Netherlands	277	344	395	80.6	70.3	48,061	58,624	68,343	80.100	97,704	113,903	82.0	70.3
Poland. . .	7,149	6,998	6,742	102.2	106.0	705,041	716,543	677,552	1,175.044	1,194,214	1,129,231	98.4	104.1
*Portugal . .	...	80	76	...	...	...	11,305	13,305	.	18,842	22,174	...	...
*Romania. .	535	511	482	104.7	111.0	...	41,778	37,744	..	69,629	62,905	...	...
Sweden .	319	319	331	99.9	96.3	41,249	38,374	40,936	68,746	63,956	68,226	107.5	100.8
Switzerland.	116	113	116	102.6	100.5	12,787	14,956	16,190	21,311	24,927	26,983	85.5	79.0
Czechosl s)	104	99	90	105.2	116.6	7,107	5,975	6,770	11,845	9,958	11,284	119.0	105.0
Czechosl t)	1,769	1,751	1,688	101.0	104.8	197,843	163,284	194,859	329.732	272,135	324.758	121.2	101.5
*Yugoslavia.	655	656	617	99 9	106.2	...	29,794	32,118	..	49,656	53,529	...	...
Total Europe	*24,447*	*24,225*	*24,128*	*100.9*	*101.3*	*2,804,554*	*2,612,635*	*2,764,198*	*4,671,398*	*4,354.308*	*4,606,446*	*107.3*	*101.5*
*U. S. S. R.	...	18,226	14,724	...	...	...	...	1,070,731	...	...	1,784,516	...	...
Canada . .	496	507	556	97.9	89.2	39.063	38,670	46,160	65.105	64,450	76,934	101.0	84.6
United States	3,058	3.551	3,426	90.6	93.9	199 346	232,607	221,944	332 244	387,678	369,907	85.7	89.8
*Syria and Lebanon . . .	...	18	18	...	...	...	1,004	903	...	1,673	1,505	...	...
*Turkey. . .	130	115	100	112.6	130 5	..	2,831	2,711	...	3,885	4,518	..	...
Algeria . s)	18	18	24	100.0	74.2	1,005	1,067	946	1,675	1,778	1,576	94.3	106.3
Algeria . *t)	25	23	23	108.9	106 0	...	1,319	1,046	...	2,199	1,743	...	...
*Eritrea . . .	...	1	1	...	...	...	8	6	...	13	9	...	..
*New Zealand	23	23	25	101.5	93.3	...	2,710	2.856	...	4,517	4,760	...	...
Totals. . .	**28,019**	**28,301**	**28,134**	**99.0**	**99.6**	**3,013,968**	**2,884,979**	**3,032,971**	**5,073,222**	**4,808,214**	**5,054,863**	**105.5**	**100.4**

*) Countries not included in the totals — *s*) Early potatoes. — *t*) Late potatoes. — 1) Figures calculated on the basis of approximate percentages for 1935.

France: Lifting of the late crops took place under normal conditions in November. Corrected figures for the outturn show a decrease of 7 per cent. on the estimate made last month and the crop, which seemed to be good, is barely larger than that of last year and a little below the average.

Great Britain and Northern Ireland: Lifting was completed in November Quality and condition of the crops was generally fair but the presence of diseased tubers in some areas will affect keeping.

Algeria: The yield of main-crop potatoes (the spring-summer crop) seems to be at least normal.

SUGAR

At the end of November and during the first days of December the weather was quite favourable in those countries where harvesting was not complete. At first cold and variable, the weather became milder, favouring the last lifting and carting of the beets.

In accordance with recent information received, some alterations have been made in the figures of the table in which were published estimates of the sugar-beet production for the present season. Figures for Denmark have been increased, as well as those for Great Britain, Hungary, Poland, Sweden, Czechoslovakia, Yugoslavia and, outside of Europe, for the United States and Turkey. Decreases have been reported for Belgium, the Netherlands, and Romania. As regards the U. S. S. R. the very approximate figures given in previous months have been left as they were, since definite information is lacking.

Generally speaking, taking into account the above alterations and excluding the U. S. S. R., it is anticipated that European sugar production for the present season will be greater by 2 per cent. than that of the 1935-36 season and by 1 per cent. than the average production of the five preceding years. Total world production will be 5 per cent. greater than last year and 3 per cent. greater than the average five-year production.

As regards cane-sugar, enough information is not yet to hand to permit of preparing a complete world table nor even to give an approximate idea of world production as in some countries manufacture has still to be commenced; first estimates offered by a small number of important sugar-cane producing countries would seem to indicate that there is likely to be an increase in production this year, and in some cases quite a considerable increase; it is therefore to be anticipated that the total sugar-cane production for the 1936-37 season will not be less than that of last tear.

* * *

France: Lifting of beets and carting to the factories took place under normal conditions during November as the weather was, generally speaking, favourable, especially during the latter half of the month which was cold and dry in the north. Unit-yields are irregular and, as will be seen from the figures published in the table, rather below the average in the north - 258 centals (13 short tons) per acre. It is stated that the juice is of excellent quality.

Great Britain and Northern Ireland: A large proportion of the crops was lifted in variable conditions, stormy weather having been experienced in the first half of No-

Production of Beet-sugar (raw).

COUNTRIES	PRODUCTION (1 Sept.-30 Novemb.)		TOTAL PRODUCTION DURING THE SEASON			% 1936-37	
	1936-37	1935-36	1936-37 1)	1935-36	Average 1930-31 to 1933-34	1935-36 = 100	Average = 100
	Thousand centals						
Germany	2) 12,063	2) 10,390	38,363	36,943	36,757	104	104
Austria	2,550	2.882	3,307	4,539	3,842	73	86
Belgium	...	...	5,291	5,229	5,490	101	96
Bulgaria	212	332	212	332	667	64	32
Denmark	...	...	4,850	5,379	3,468	90	140
Irish Free State	...	...	2.155	1,985	740	109	291
Finland	187	143	220	191	143	116	154
France	...	...	20,503	20,283	23,224	101	88
Great Britain	...	...	11.464	11,339	10,011	101	115
Hungary	2) 1,104	2) 1,181	3,026	2,579	3,166	117	96
Italy	...	...	7,231	7,069	7.884	102	92
Latvia	680	625	758	1,117	608	68	125
Lithuania	...	...	492	488	270	101	182
Netherlands	2) 2,118	2) 1,978	5,129	5,001	5,273	103	97
Poland	2) 2,958	2) 2,619	10,141	9,800	10,912	103	93
Romania	...	...	1,984	3,247	2,455	61	81
Sweden	6,504	6,493	6,724	6,493	5,036	104	134
Switzerland	...	...	198	185	165	107	121
Czechoslovakia	15,627	12,291	15,653	12,582	16,547	124	95
Yugoslavia	...	...	2,155	1,980	1.791	109	120
Total Europe a)	—	—	*139,856*	*136,761*	*138,449*	*102*	*101*
U.S.S.R.	...	...	44,093	44,093	27,580	100	160
Total Europe b)	—	—	*183,949*	*180,854*	*166,029*	*102*	*111*
Canada	...	...	1,594	1,362	1,316	117	121
United States	...	...	29,542	25,483	28,056	116	105
Total North America	—	—	*31,136*	*26,845*	*29,372*	*116*	*106*
Japan	...	...	1,014	758	629	134	161
Turkey	...	...	1,543	1,311	861	118	179
Total Asia	—	—	*2,557*	*2,069*	*1,490*	*124*	*172*
TOTALS *a)*	—	—	**173,549**	**165,675**	**169,311**	**105**	**103**
TOTALS *b)*	—	—	**217,642**	**209,768**	**196,891**	**104**	**111**

a) Not including U. S. S. R. — *b)* Including U. S. S. R. — 1) Approximate data. — 2) Production to the end of October.

vember, while, though moderate temperatures prevailed, some frost occurred in the third week of the month. The unit-yield was expected to be about 9 tons of washed and topped beet per acre.

U. S. S. R.: According to information in the *Sotsialisticheskoye Zemledelstvo,* the organ of the People's Commissariat for Agriculture, the sugar-beet crop has been got in and the total yield for the entire country is considered to be greater than last year's abundant crop.

The good results obtained this year are attributed chiefly to the fact that an excellent crop was obtained in Ukraina and in the eastern regions of the Union, since the crop was bad, principally on account of bad weather conditions, in the provinces of Voronezh and Kursk, which are the most important sugar-beet producing regions after Ukraina.

Sugar-beet.

COUNTRIES	AREA					PRODUCTION							
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	1936	1935	Average 1930 to 1934	% 1936	
	1,000 acres			1935 = 100	Average = 100	1,000 centals			1,000 short tons			1935 = 100	Average = 100
Germany	961	921	887	104.3	108 3	252,435	232,984	232,837	12 622	11,649	11,642	108.3	108 4
Austria	90	107	107	84 3	84 1	19,606	25,353	23,929	980	1,268	1,196	77 3	81.9
*Belgium	127	127	133	100 1	95.7	...	33,844	36,475	...	1,692	1,824	. .	. .
Bulgaria	12	17	31	67.0	37.6	1,371	3,401	4,873	69	170	244	40 3	28.1
Denmark	122	124	97	98.4	125.9	39,242	41,339	26,711	1,962	2,067	1,336	94 9	146 4
Finland	8	7	6	109 3	140.1	1,764	1,517	1,214	88	76	61	116 3	145.3
France 1)	710	748	780	94.8	91.0	177,604	183,379	198,168	8,880	9,169	9,908	96.9	89.6
Engl. and W	357	367	319	97.2	111.9	64,774	75,040	63,836	3,239	3,752	3,192	86 3	101.5
Scotland	7	7	3	90 8	269 8	1,525	1,478	490	76	74	25	103 2	311 1
Hungary	122	116	128	104 6	95.1	24,122	16 953	22,676	1,206	848	1,134	142 3	106.4
*Italy	..	227	238	. .	...	..	51,252	56,494	...	2,563	2,825	.	...
*Latvia	..	38	2) 29	...	..	...	6,471	3) 5,749	..	324	3) 287	...	...
*Lithuania	17	17	8	100 0	210.2	...	2,998	1,423	. .	150	71	...	..
Netherlands	108	102	111	106.5	97.3	35,274	33,648	37,188	1,764	1,682	1,859	104.8	94.9
*Poland	297	293	327	101.3	91.0	.	55,128	62,945	...	2,756	3,147	...	. .
*Romania	72	91	81	79.5	88 9	..	13,812	12,292	...	691	615	...	. .
Sweden	126	125	105	100 7	119.5	40,477	41,138	32,391	2,024	2,057	1,620	98 4	125.0
Switzerland	4	4	4	113.3	119 4	1,543	1,323	1,161	77	66	58	116 7	132.9
Czechoslov	381	387	425	98.4	89 7	92,452	80,521	100,434	4,623	4,026	5,022	114 8	92,1
*Yugoslavia	75	74	100	100.4	75.1	..	10,675	14,001	...	534	700	...	...
*U. S. S. R.	4) 3,021	3,027	3,144	99 8	96 1	...	357,371	233,612	.	17,868	11,680	...	...
Canada	56	53	49	106.5	113 2	11,380	9,316	9,283	569	466	464	122.2	122 6
United States	785	763	801	102 9	98 0	190,100	158,160	178,884	9,505	7,908	8,944	120 2	106 3
*Turkey	61	51	38	119.5	158 0	...	6.614	5,603	. .	331	280	...	.
TOTALS	**3,849**	**3,848**	**3,853**	**99.9**	**99.9**	**953,669**	**905,550**	**934,075**	**47,684**	**45,278**	**46,705**	**105.3**	**102.1**

*) Countries not included in the totals — 1) Including beets for distilleries — 2) Average 1932 to 1934 — 3) Average 1933 and 1934 — 4) Area sown on 15 May, that estimated for the plan was 3,076,000 acres

Guadeloupe The sugar yield for the season 1935-36 was 1,040,000 centals (52,000 short tons); this amount is slightly more than that of the preceding season, which was a record yield.

Surinam: The old plantations of sugar-cane were favoured by good weather during the third quarter of 1936, but the young plantations suffered from scarcity of rain.

French Indo-China Crop condition was normal at the end of October throughout Annam and good in Cochin-China. In Tonkin cutting for raw consumption and the extraction of molasses had begun.

India: Harvesting and grinding continued in December in the Punjab, where the weather had been dry prior to the beginning of that month. In the first week of December rain was general.

In Bihar crop condition was good on 7 December There had been only light rains in the preceding four weeks. Grinding began in mid-November. Orissa had even less rain during this period, cane was maturing in Cuttack. Dry weather also prevailed in Bengal.

Madras had moderate rains and on 12 December crop condition was fair.

Iran: According to the most recent estimates, the total yield of sugar-beet in Iran this year will be about 5,300,000 centals (260,000 short tons).

Japan: According to the most recent estimate production of cane-sugar in 1936-37 will be about 2,723,000 centals (136,100 short tons) against 2,427,000 (121,300) in 1935-1936 and 2,018,000 (100,900) on the average of the five years ending 1934-35; percentages 112.2 and 134.9.

Java and Madura: During the first half of November there were local showers in several parts of the country, with varying, but in general satisfactory, effects. The condition of the cane varies from good to very good and cutting is proceeding regularly except in some areas where the rain has been insufficient.

In the latter half of November rainfall was not satisfactorily distributed. Though here and there insufficient rains fell to neutralize the effects of the drought the plantings as a whole profited by the moisture.

After-cultivation was in full progress save where precipitation was inadequate or where in very restricted areas heavy rains hindered operations.

As much labour was at this time absorbed for the working of the *sawahs* the numbers available were not everywhere sufficient.

White lice caused local damage and there was also some local damage by rats.

Taiwan: The condition of the sugar-cane crop, which is at present being cut is generally speaking mediocre; the cane on young plantations is growing normally.

Union of South Africa: According to the most recent estimate production of cane-sugar for 1936-37 will be about 8,900,000 centals (445,000 short tons) against 8,346,000 (417,300) in 1935-36 and 7,312,000 (365,600) on the average of the five years ending 1934-35; percentages 106.6 and 121.7.

VINES

The crop estimates published in the table below are still relatively few, incomplete and in some cases merely provisional and approximate.

The clearest and most important facts they demonstrate are the further reduction in the estimate of probable French production, which should not exceed 880 million Imperial gallons (1,060 million American gallons) and the appreciable increase in the estimate for Italy, of which production is just below the average and not 20 per cent below as was expected.

The crop declarations of Algeria indicate a production 20 (25) to 40 (50) million gallons above that generally forecast but still extremely low. In the Danubian area the first provisional and approximate estimate for Romania confirms the previous forecasts, while the figure for Bulgaria is only calculated from the figure of total grape production already known. Finally, in Central Europe the first official estimate for Germany indicates a crop a little larger than appeared to be expected last month and distinctly above the average, while the estimate for Austria conforms to expectations.

The information received for countries that have not yet supplied any crop estimate includes confirmation of the fact that the Spanish crop will be very small, having been satisfactory practically only in La Mancha, without taking into account the troubled conditions in which the vintage has been made. The Portuguese crop also appears likely to be rather mediocre. If the information

Vines (for wine).

COUNTRIES	AREA IN BEARING					PRODUCTION OF WINE				
	1936	1935	Average 1930-1934	% 1936		1936	1935	Average 1930-1934	% 1936	
	1,000 acres			1935 = 100	average = 100	1,000 Imperial gallons			1935 = 100	average = 100
Germany	181	177	177	101.9	101.8	† 71,615	† 91,192	† 60,266	78.5	118.8
Austria	76	67	69	114.1	109.9	20,040	30,335	24,216	66.1	82.8
Bulgaria	1) 230	1) 223	1) 211	103.1	108.9	2) † 37,000	2) † 68,000	† 48,443	55.0	77.0
Spain	...	3,416	3,329	...	..	...	† 374,776	† 439,829	...	...
France										
crop declared	3) 3,465	3,719	3,537	93.2	98.0	868,881	1,606,646	1,196,392	54.1	72.6
total crop	...	3,828	3,809	...	...	...	1,673,259	1,251,434	...	...
Greece	4) 387	4) 372	4) 342	104.0	113.2	† 38,167	† 108,804	† 67,814	35.1	56.3
Hungary	...	472	475	...	...	...	† 62,870	† 75,246	...	...
Italy:										
unmixed	...	5) (2,415)	5) (2,405)	...	...	—	—	—	—	—
mixed	...	5) (7,274)	5) (7,296)	...	...	—	—	—	—	—
total	...	5)6) 3,266	5)6) 3,259	...	...	2) 790,000	1,065,981	800,640	75.0	99.0
Luxemburg	7) 3	7) 3	7) 3	89.1	85.7	1,188	1,559	1,581	76.2	75.1
Portugal	—	—	8) 868	—	—	...	130,321	172,989	...	...
Romania	—	—	9) 570	—	—	132,000	230,052	181,115	57.0	73.0
Switzerland	32	33	32	99.5	102.6	...	23,889	11,312	...	...
Czechoslovakia	7) 62	7) 58	7) 48	105.8	129.6	...	13,217	8,931	...	...
Yugoslavia	...	512	478	...	...	...	119,179	86,302	...	..
—										
Algeria	965	987	838	97.7	115.1	253,562	415,975	381,390	61.0	66.5
French Morocco	...	42	24	...	...	...	11,439	8,358	...	...
Tunisia	...	110	102	...	...	...	37,396	28,782	...	...

† Must 1 hectolitre represents about 0.9 hl of wine for Bulgaria, Greece, Hungary and Luxemburg, for Germany, the coefficient is 93 % and for Spain 97-98 %.

1) All vines, including vines for table grapes — 2) Figure calculated from the production of wine-grapes — 3) The apparent diminution of bearing area is due in part to the fact that a relatively small number of growers declared their crops (1,413,000 in 1936 against 1,658,000 in 1935 and 1,512,000 for the five years average — 4) All vines for wines, including those not in bearing — 5) Average 1931-1934 — 6) Representative area, calculated by counting the area of mixed crop as representing 11.7 % of the same area under unmixed crop, according to the number of vines per acre in 1929. — 7) Total area of all vines, including 4,200 to 4,900 acres of vines for table grapes, and area not in bearing — 8) Figure for 1929, representing the area of all vines, including vines for table grapes and raisin. — 9) Approximate figure for 1932 area in bearing of all vines was 675,000 acres in 1932 and area of vines for table grapes was 100,000 acres in 1931.

received last month from Greece is taken into account (1) it would appear that the total production of the three large European exporters – Spain, Portugal and Greece – will be something like 400 (480) to 450 (550) million gallons, considerably smaller than that of last year, which was 572 (687) million and than the five-year average of 664 (798) million.

Non-official estimates confirm the fact that the Yugoslav crop has not been satisfactory and there is no reason to modify the indication of a total production of 310 (370) to 330 (400) million gallons given last month for the total of the Danubian countries – Romania, Yugoslavia, Hungary and Bulgaria.

The production of the United States is somewhat unsatisfactory and rather below the average.

---

(1) The figures, which are put in the table, were communicated when the Bulletin was under press. They confirm the forecasts given here.

If account is taken of all the elements above indicated – crop estimates for certain countries and less precise information for others – it would appear that the partial corrections made in the provisional estimates of last month neutralize each other fairly completely and that there is therefore no reason to modify the general indication given for the entire production of wine in the northern hemisphere. Not taking into account the Soviet Union, this production would still appear to be fairly close to the figure of 2,860 (3,430) million gallons.

P. V.

* * *

France: Statements regarding the wine crop in the four important producing departments of the south – Hérault, Gard, Aude and the Eastern Pyrenees – show an even greater deficit than was expected last month, the outturn this year is lower by 88 million Imperial (106 million American) gallons, that is, by one-fifth, than the previous minimum since the war, namely in 1926. The deficit would seem to be less important taking the departments of the south-west basin of the Garonne as a whole, for in this region it is only one-third, thanks to the rather satisfactory yield in the Gironde (Bordelais), and in spite of the sometimes considerable deficit which has occurred in some departments, in the east central districts – Burgundy and the Rhône basin the production will be about 40 per cent less than last year. The deficit will be considerably greater in the west – the Charente districts and the Loire basin – and in the east - Champagne, Lorraine and Alsace - where the deficit will represent from 60 to 70 per cent. of last year's production

Judging from the estimates based on the results of the harvests, more or less exactly known, the French crop, including undeclared quantities, seems to amount on the whole to about 880 million Imperial (1,060 million American) gallons, and would therefore be less than the previous minimum crop of 1926 totalling 937 million Imperial (1,268 million American) gallons (1).

Taking into account the abundant private and trade stocks remaining from last season, the supplies for this season would appear to be less than the normal volume for the period prior to 1933-34 by about 100 million Imperial (130 million American) gallons.

November, which was rainy especially in the west during the first fortnight, and fairly fine with variable temperatures during the second half of the month, was quite favourable to work in the vineyards In the south pruning was progressing at the end of November

Production of table grapes this year is about 2,382,000 centals against 2,681,000 in 1935 and 2,687,000 on the average of the five years ending 1934, percentages 88 9 and 88.7.

Italy. It is officially estimated that the crop of wine grapes is this year 75 per cent of the last one It would be about 124 million centals, that is, nearly the same as the average crop of the five years ending 1934 Of this quantity, it may be estimated that 4.5 million centals in rounded figures were consumed fresh. On this basis and assuming that the yield of grapes in must was nearly normal, it may be estimated that wine production is about 770 to 790 million Imperial gallons (920 to 950 million American gallons). The latter figure, distinctly higher than the conjectural figure given last month, is published in the table

Romania. Vintage results were very variable In the Old Kingdom and in Basarabia the crop varies from average to bad while in Transylvania it was fairly satisfactory.

---

(1) The figure put in the table and communicated when the Bulletin was under press, would indicate a total crop of 900 million Imperial (1,080 million American) gallons.

Argentina: An exact enquiry has been made for the first time by the administration of indirect taxes to determine precisely the stocks of worked-up wine; as the enquiry was carried out in August, after the completion of operations in the industrial cellars and before the first shipments of new wines, the results may be regarded as giving an exact picture of the position at the beginning of the commercial season 1936-37. This new precision with respect to previous evaluations makes a certain care necessary in comparing the results with preceding years; the percentages are given, however, as roughly indicative.

The quantity of wine worked up this year and representing the commercial outturn of 1935-36 (excluding household production) is 126,500,000 Imperial gallons (151,900,000 American gallons) against 97,200,000 (116,700,000) in 1934-35 and 123,500,000 (148,400,000) on the average of the five preceding years; 130.2 per cent and 102.4 per cent. It must be borne in mind that the Junta Reguladora dos Vinos bought and removed from vinification about 30 per cent, if not more of the grape crop.

The stock of old wines in August use to 69 7 (82.1) million gallons, which gave a total of over 196 (235) millions, of which three-fourths were of red wines and one-fourth of white. This total is appreciably above the quantity absorbed by commercial consumption.

United States: This year's outturn of wine seems to be less than was anticipated. According to a report prepared by the Secretary of the Wine Institute, the quantity of grapes employed for wine-making this year in California seemed to be only half that used last year and would be about 9 million centals (900,000 short tons); the total outturn of wine will thus barely amount to 66 million Imperial (80 million American) gallons and will probably be less than the average for the five seasons prior to 1935.

The same report states that the stocks of old native wines existing at the beginning of the new season were less than last year at the same period, as the demand for Californian wines has increased to more than 60 per cent. in the Eastern States. It is therefore expected that present supplies will be almost exhausted during the season and that stocks remaining at harvest times in 1936 will be much reduced in quantity. This situation has caused a 75 per cent rise in the price of wine grapes at the source, and it is expected that a similar rise will occur in the price of wine manufactured for the trade

Syria and Lebaon Vineyards were in good condition and quotations were from 90 to 100 at the end of November, a good crop was expected on the whole.

Algeria The figures for crop statements published in the following table are somewhat higher than was anticipated a month ago Taking into account declared stocks, the season's supplies are only about 40 million Imperial (50 million American) gallons, that is, 12 per cent below those of the five seasons prior to 1934-35.

Fermentation was on the whole complete at the beginning of December towards the end it was hampered by the cold weather.

The weather, which was generally good during the first half of November, was rather rainy during the latter half of the month. Ripening was satisfactory in most cases in the department of Algiers, where the leaves had not all fallen by the end of November, in the department of Oran the leaves fell prematurely in consequence of the severe attacks of mildew and oïdium, resulting in the sprouting of young shoots which were unfavourable to the vines, but their growth was arrested by the cold weather.

French Morocco: Drought prevailed from 15 October to 20 November, but abundant rains fell throughout Western Morocco during the last ten days of the month. Pruning had commenced at the end of the month.

Union of South Africa: A good grape crop was expected.

Australia: The outturn of wine in 1935-36 is at present estimated at about 16,923,000 Imperial (20,323,000 American) gallons; this figure, the highest ever obtained in Australia is 4.1 per cent. more than that of 1934-35 and 14.6 per cent. above the average for the five preceding years; the increase is due to the irrigated vines whose yield attained a record figure, amounting to 38.3 per cent. of the total production. The total volume of stocks on 30 June last, i. e , three months after the beginning of the trade year, amounted to a record figure· 17,468,000 Imperial (21,951,000 American) gallons, and was 16 per cent higher than that of June 30th 1935, 52.4 per cent above the previous five-year average. During the 1935-36 season, exports and home consumption rose considerably, 9 per cent. in the former case and 7 per cent. in the latter. However, distillation has increased still more, totalling 21.5 per cent. more than during the preceding season, the amounts distilled reaching the considerable figure of 11,221,000 Imperial (15,852,000 American) gallons, namely, 24 3 per cent above the average for the period 1929-30 to 1933-34

OLIVES

France The olive crop, which is variable in certain departments, will be more or less equal to an average crop

Greece: According to information collected by the Ministry of Agriculture, the production of olive oil this season will be below that of last season, which was not very abundant either. The olive harvest is still in progress and will be completed during the month of January

Italy It is confirmed that production is poor Quality is variable and in some areas not good, especially owing to fly

Olive and olive-oil production.

Countries	Area					English measures			American measures			% 1936 37	
	1936/ 1937	1935/ 1936	Aver. 1930/ 1931 à 1934/ 1935	% 1936-37		1936/ 1937	1935/ 1936	Aver 1930/ 1931 à1934/ 1935	1936/ 1937	1935/ 1936	Aver. 1930/ 1931 à 1934/ 1935	1935/ 1936 = 100	Aver = 100
				1935/ 1936 = 100	Aver = 100								
	Thousand acres					Thousand centals			Thousand s) pounds t) Amer gal				
Spain	...	4,747	4,684	...	...	s) ...	49,629	33,013	...	4,962,944	3,301,344	...	...
						t) ...	9,696	6,341	..	127,411	83,324	...	...
France	—	—	—	—	—	s) ...	1,026	762	...	102,559	76,177	...	...
Greece 1)	—	—	—	—	—	s) 246	735	681	24,620	73,540	68,059	33 5	36 2
						t) 1,151	1,944	2,484	15,124	25,548	32,637	59.2	46 3
Italy a	...	2,080	1,912	...	...	s) 2)20,500	28,001	26,488	2,050,000	2,800,098	2,648,766	73 0	77 2
Italy b	...	3,045	3,323	...	...	t) 3) 3,086	4,651	4,152	40,558	61,122	54,557	66.4	74.3
Portugal 4)	...	...	5) 1,189	...	...	s) ...	9,288	7,196	...	928,798	719,565	...	...
—						t) ...	1,162	962	...	15,272	12,637	...	...
Algeria 6)	...	175	5) 169	...	...	s) 7) ..	175	224	...	17,496	22,422	...	..
						s) 8).	2,266	2,654	...	226,606	265,352	...	...
						t) ..	324	342	...	4,257	4,499	...	...
Tunisia	—	—	—	—	—	t) 1,213	1,213	1,021	15,934	15,934	13,413	100 0	118 8

s) Olives. — *t*) Oil. — *a*) Pure crop. — *b*) Mixed crop — 1) Olive production refers to table olives. — 2) Figure calculated on the basis of approximate percentages of 1935 36 — 3) Approximate — 4) Crushed olives — 5) Average 1933-34 and 1934 35 — 6) Plantations of cultivated olives having at least 50 trees per hectare and including about 47 per cent of the total olives cultivated (9,400,000, of which 7,525,000 in bearing, on the average of the five years ending 1934-35 and 9,860,000, of which 8,493,000 in bearing, in 1935 36 — 7) Olives for preserving — 8) Olives for oil

Syria and Lebanon: Conditions during November were favourable. The condition of the trees was still good and quotations were from 90 to 100 at the end of the month; a good average crop was expected on the whole.

Algeria: Generally speaking the crop is expected to be only half that of a normal season. Crop condition was good at the beginning of December. Ripening is progressing slowly. Black olives for preserving are ripening under favourable conditions but, though good, the fruit is scarce. Fly has caused considerable damage everywhere, and this, added to that already caused by starlings, has reduced the crop still further.

French Morocco: Harvest was in full swing at the end of November in all districts; work has been pushed on in consequence of the increasingly important losses caused by starlings. The yield will doubtless be only average.

THE WORLD STATISTICAL SITUATION OF LINSEED

The latest estimates of production communicated by Germany, Romania and Bulgaria in November and December, confirm for 1936 a European linseed crop larger than that of 1935 and decidedly above the average. The factor which has determined the increase in volume of European production is essentially the extension of flax cultivation for seed which, after a somewhat marked decline from 1929 to 1931, has shown a steady recovery in nearly all the producing countries. In the present season in fact, apart from Estonia, Romania and Hungary, in which the area has been reduced as compared with 1935 and even, in Hungary, as compared with the average, all the producing countries have continued to extend the crop.

Among the countries which have especially intensified linseed growing special mention may be made of Germany, which although this crop was introduced only a few years ago, already occupies the third place in European production (not including the U. S. S. R.), standing immediately after Poland and Lithuania. Production estimates have not yet been received from Poland, Estonia, the Netherlands, France, Belgium and some countries of less importance; according, however, to the available information a satisfactory crop may be reckoned on for these countries as a whole, similar to that harvested last year, and therefore much above the average.

There is still no production estimate for the U. S. S. R., but, contrary to what has been the case in the flax-growing countries of Europe, the crop has been for some years on the decline. In fact, the area as established by the Plan for the 1936 crop, while remaining almost unchanged as compared with the previous year, shows a reduction of about 14 per cent. as compared with the average. At the same time the information available as to the course of the season, which has been on the whole favourable to the development of the crop, and as to the measures adopted by the Soviet Government with regard to the improvement of the product in quality, points to a more abundant linseed harvest than that of 1935, and one also somewhat exceeding the average, calculated at 16,800,000 centals (29,900,000 bushels).

The Soviet production of linseed, although considerable, has no importance for world trade, as its volume is almost entirely absorbed by the requirements of the internal market.

Flax.

Countries	†) Area					†) Production							
	1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Average = 100	1936 — 1936/1937	1935 — 1935/1936	Aver. 1930 to 1934 — 1930/31 to 1934/35	1936 — 1936/37	1935 — 1935/36	Aver. 1930 to 1934 — 1930/31 to 1934/35	% 1936 — 1936/37: 1935 — 1935/1936 = 100	% 1936 — 1936/37: Aver. = 100
	1,000 acres					1,000 centals			1,000 pounds				
						Fibre.							
Germany 1)	109	55	18	197.9	614.5	657	303	2) 94	65,679	30,330	2) 9,354	216.5	702.1
Austria 3)	4	5	6	94.7	74.1	12	12	17	1,230	1,160	1,708	106.1	72.0
*Belgium	52	47	35	112.6	149.7	...	343	219	...	34,347	21,922	...	...
Bulgaria	6	6	1	108.9	423.1	14	8	3	1,412	786	336	179.6	420.2
Estonia	70	73	51	96.6	137.1	207	231	144	20,675	23,073	14,448	89.6	143.1
*IrishFree State	...	5	2	...	...	...	23	7	...	2,300	689	...	...
*Finland 4)	12	12	10	102.9	123.9	...	39	32	...	3,946	3,236	...	...
France	97	82	44	117.6	222.9	563	479	247	56,317	47,885	24,652	117.6	228.4
*N. Ireland	25	28	13	91.4	188.0	...	154	62	...	15,438	6,156	...	...
Hungary	9	6	5) 8	130.3	102.1	42	21	5) 27	4,239	2,125	5) 2,666	199.5	159.0
*Italy	...	9	10	...	...	...	44	48	...	4,381	4,767	...	...
Latvia	167	168	105	99.6	159.0	398	547	310	39,838	54,697	30,975	72.8	128.6
Lithuania 4)	208	194	146	107.0	142.0	628	703	459	62,766	70,328	45,936	89.2	136.6
Netherlands	36	23	17	153.3	207.7	256	187	114	25,618	18,723	11,365	136.8	225.4
*Poland	330	305	253	108.4	130.5	...	878	712	...	87,811	71,195	...	...
*Romania	71	77	55	91.3	128.2	...	210	129	...	21,007	12,915	...	...
Czechoslovakia	40	33	22	122.0	180.7	197	149	95	19,706	14,923	9,541	132.1	206.5
*Yugoslavia	33	30	30	110.8	111.5	...	222	226	...	22,169	22,604	...	...
Total Europe	*746*	*645*	*418*	*115.8*	*177.1*	*2,974*	*2,640*	*1,510*	*297,480*	*264,030*	*150,981*	*112.5*	*196.9*
*U. S. S. R 6)	7) 5,072	5,206	5,513	97.4	92.0	...	12,125	11,322	...	1,212,546	1,132,197	...	...
Egypt	6	5	3	124.7	182.8	41	29	21	4,121	2,929	2,083	140.7	197.9
Totals	**752**	**650**	**421**	**115.6**	**177.2**	**3,015**	**2,669**	**1,531**	**301,601**	**266,959**	**153,064**	**112.9**	**197.1**
						Linseed.							
									1,000 bushels of 56 pounds				
Germany	109	55	18	197.8	614.3	715	366	2) 105	1,276	654	2) 187	195.1	682.5
*Austria	...	3	4	...	...	12	12	14	21	22	24	98.2	87.3
*Belgium	52	47	35	112.6	149.7	...	241	174	...	430	311	...	...
Bulgaria	6	6	1	108.9	423.1	42	26	6	75	46	10	163.4	721.5
*Estonia	70	73	51	96.6	137.1	...	207	161	...	369	288	...	...
*France	97	82	44	117.6	222.9	...	340	204	...	607	364	...	...
Hungary	16	24	5) 30	66.6	53.4	124	117	5) 141	221	210	5) 251	105.5	87.8
*Italv	...	10	15	...	...	...	49	78	...	88	140	...	...
Latvia	167	168	105	99.6	159.0	355	454	299	633	811	533	78.1	118.8
Lithuania 4)	208	194	146	107.0	142.0	778	833	559	1,389	1,487	999	93.4	139.0
*Netherlands	330	23	17	153.3	207.7	...	153	98	...	273	176	...	...
*Poland	36	305	253	108.4	130.5	...	1,564	1,105	...	2,793	1,974	...	...
Romania	71	77	55	91.3	128.2	299	252	232	534	450	415	118.8	128.7
Czechoslovakia	40	33	22	122.0	180.7	134	126	71	239	225	127	106.2	187.7
Total Europe	*617*	*557*	*377*	*111.1*	*163.4*	*2,447*	*2,174*	*1,413*	*4,367*	*3,883*	*2,522*	*112.6*	*173.2*
*U. S. S. R. 8)	9) 5,800	5,758	6,724	100.7	86.2	...	...	16,708	...	...	29,836	...	...
Canada	468	214	432	218.3	108.2	996	824	1,321	1,779	1,472	2,359	120.9	75.4
United States	1,180	2,014	2,107	58.6	56.0	3,308	7,909	6,440	5,908	14,123	11,501	41.8	51.4
India	3,402	3,410	3,118	99.8	109.1	8,602	9,408	8,714	15,360	16,800	15,560	91.4	98.7
*Turkey	44	24	35	183.5	128.4	...	134	99	...	240	177	...	...
Egypt	6	5	3	124.7	182.8	43	36	25	77	64	44	119.2	173.9
*Eritrea	...	2	10) 4	...	...	...	13	10) 20	...	24	10) 36	...	...
French Moroc.	41	42	52	98.2	78.4	176	136	246	315	243	440	129.6	71.6
Argentina	6,536	5,088	6,678	128.5	97.9	41,447	31,416	41,634	74,013	56,100	74,347	131.9	99.6
*Uruguay	...	403	392	...	...	...	1,877	1,979	...	3,552	3,534	...	...
Totals	**12,250**	**11,330**	**12,767**	**108.1**	**96.0**	**57,019**	**51,903**	**59,793**	**101,819**	**92,685**	**106,773**	**109.9**	**95.4**

---

†) The years indicated are those of the harvest, single years referring to the northern hemisphere, double years to the southern. — *) Countries not included in the totals. — 1) The corresponding figures of production in dry stalks (flax and straw, *Rohstengel*) in 1,000 pounds are as follows: 1936 - 328,397, 1935 - 151,652; average - 46,772. — 2) Year 1933 and 1934. — 3) The corresponding figures of production in dry stalks are as follows in 1,000 pounds: 1936 - 6,349, 1935 - 5,798, average 8,539. — 4) Flax and hemp. — 5) Year 1934. — 6) " Dolgunetz " variety. — 7) Area harvested at 1 September, representing 97 % of the area fixed by the Plan (5,241,000 acres). — 8) Total area (including that for flax). — 9) Total area according to the Plan. — 10) Average 1931 to 1934.

In North America the present season has been characterized by very poor crops, due mainly to the exceptional dry weather in the spring and to the great heat of the summer. It should be remarked that, while in Canada flax cultivation for seed has undergone a very noticeable extension in area (118.3 per cent.) as compared with the previous year, also exceeding the average by 8.2 per cent., in the United States the diminution of the area so cultivated is calculated at 41.3 per cent. and 44.0 per cent. respectively.

In the United States, the December estimate confirms an extremely slender production, scarcely 550,000 centals (1,000,000 bushels) more than the disastrously small crop of 1934. In Canada the estimate of production made in October – which will be merely revised next month – shows an increase of about 21 per cent. as compared with 1935, but it remains lower by 24.6 per cent. than the preceding five – year average.

Taken as a whole, the production of the two North American countries remains very poor, hardly reaching 4,300,000 centals (7,700,000 bushels) a decrease of more than 50 per cent. on that of 1935 which was calculated at 8,700,000 centals (15,600,000 bushels), and of 44.5 per cent. on the average figure of the previous five years, taken as 7,800,000 centals (13,900,000 bushels).

In Argentina the third estimate of the area sown to linseed in 1936-37, made by the Government towards the end of November, indicates a slight increase as compared with that published in October: it is also higher by 13.2 per cent. than the final figure of 1935-36 but remains lower by 3.4 per cent. than the average of the preceding five-year period. The Ministry of Agriculture of Buenos Aires, in a cablegram of 16 December, has communicated to the Institute the first estimate of production, amounting to 41,400,000 centals (74,000,000 bushels). As already forecasted in the Crop Report of October, this estimate

Area, production and yield of linseed in Argentina.

YEARS	AREA			PRODUCTION			
	sown	harvested	% of sown area harvested	total		per acre harvested	
	1,000 acres	1,000 acres	%	1,000 centals	1,000 bush	centals	bushels
1927	7,290	6,227	85.4	45,239	80,784	7 2	12.9
1928	7,055	6,773	96.0	46,297	82,674	6.9	12.3
1929	6,944	6,568	94.6	43,892	78,379	6.7	11.9
1930	7,092	5,231	73.8	28,003	50,006	5.4	9.6
1931	7,512	6,749	89.8	43,872	78,343	6.5	11.6
Average 1927/31	*7,179*	*6,310*	*87.9*	*41,461*	*74,037*	*6 6*	*11.7*
1932	8,641	8,263	95.6	49,917	89,138	6 0	10.8
1933	7,401	6,395	86.4	34,723	62,005	5 4	9.7
1934	6,855	4,878	71.2	35,054	62,596	7.2	12.8
1935	8,103	7,104	87.7	44,644	79,721	6.3	11.2
1936	6,573	5,088	77.4	31,416	56,100	6.2	11.0
Average 1932/36	*7,515*	*6,346*	*84.4*	*39,151*	*69,912*	*6.2*	*11.0*
1937	7,438	6.536	87.9	41,447	74,013	6.3	11.3

virtually coincides with preceding the five-year average, being scarcely 220,000 centals (400,000 bushels) lower, but exceeds by nearly one-third the definitive figure of last season, which was recently brought up to 31,400,000 centals (56,100,000 bushels).

The difference between the area sown and the area harvested, due to weather conditions and other unfavourable factors, amounts, for the present season, to 12.1 per cent., as compared with a difference of 22.6 per cent. in the season 1935-36 and one of 15.6 per cent. in the average of the preceding five years. The yield of 6.3 centals (11.3 bushels) per acre of area harvested is higher than that of the previous year 6.2 centals (11.0 bushels) – coinciding precisely with the average yield of the five-year period 1932-36 – but remains lower than the average yield of the period 1927-31, calculated at 6.6 centals (11.7 bushels).

Production and export of linseed in Argentina.

YEARS	PRODUCTION	EXPORT					
		first quarter	second quarter	third quarter	fourth quarter	Total	
						absolute	% of production
		(1,000 centals)					
1927	45,239	12,588	11,175	8,580	9,645	41,988	92.8
1928	46,297	14,008	9,209	10,351	9,299	42,867	92.6
1929	43,892	14,877	10,016	6,618	4,149	35,660	81.2
1930	28,003	10,520	4,661	4,400	6,204	25,785	92.1
1931	43,872	14,112	8,596	10,256	8,490	41,454	94.5
Average 1927/31	*41,461*	*13,221*	*8,731*	*8,041*	*7.557*	*37,550*	*90.6*
1932	49,917	13,466	9,019	11,636	10,580	44,701	89.6
1933	34,722	11,651	7,185	5,968	5,891	30,695	88.4
1934	35,054	12,194	5,027	6,118	6,962	30,301	86.5
1935	44,644	13,902	8,547	8,391	8,351	39,191	87.8
1936	31,416	10,020	5,210	8,069	...	...	...
Average 1932/36	*39,151*	*12,247*	*6,998*	*8,036*	...	...	...
1937	41,447	...	...	...	...	...	...

The export of Argentine linseed was lower than normal during the first six months of 1936, but showed a perceptible recovery in the course of the third quarter, during which the total export slightly exceeded the corresponding average quantities exported in the last ten years.

On the basis of the production as estimated in advance and taking into account the quantities which will be absorbed by the national linseed-oil industry and by the seed reserve and the almost negligible stocks of the past season, the Argentine Government has estimated at 38,100,000 centals (68,100,000 bushels) the exportable surplus for 1937.

Uruguay up to the present has not yet communicated any estimate of the area set aside for linseed in the season 1936-37. From non-official information, however, an extension of the area is expected and good results seem likely, as in Argentina.

In India, which occupies the second place among the linseed-exporting countries, the season has been on the whole favourable to the crop but, owing to damage caused by bad weather at the time of harvesting, the volume of production shows a decrease of about 9 per cent as compared with 1935 and of 1.3 per cent as compared with the average, in spite of the fact that the area utilized for linseed has remained practically without variation as compared with the previous year and exceeds the average by 9.1 per cent.

Area and production in and exports from India.

YEARS	AREA	PRODUCTION	EXPORTS					
			first quarter	second quarter	third quarter	fourth quarter	Total	
							absolute	% of production
	1,000 acres	(1,000 centals)						
1927	3,331	9,094	620	1,239	1,596	1,400	4,855	53.4
1928	3,311	7,796	747	1,204	1,078	798	3,827	49.1
1929	3,111	7,211	432	1,250	2,368	1,554	5,604	77.7
1930	2,802	8,512	388	3,029	1,898	538	5,853	68.8
1931	3,010	8,446	280	948	606	681	2,519	29.8
Average 1927-31	*3,113*	*8,212*	*493*	*1,534*	*1,509*	*994*	*4,530*	*55.2*
1932	3,062	9,317	459	423	390	456	1,728	18.6
1933	3,301	9,094	346	1,111	3,274	3,051	7,782	85.6
1934	3,262	8,422	1,052	2,019	1,739	1,347	6,157	73.1
1935	3,410	9,407	214	1,005	282	1,418	2,919	31.0
1936	3,403	8,602	1,003	2,209	2,006	..	...	...
Average 1932-36	*3,288*	*8,968*	*615*	*1,353*	*1,538*	...	...	...

The export movement of Indian linseed during the first nine months of the current year was very marked, owing to the favourable price situation on the international market, and in fact exports reached the record figure of 5,200,000 centals (9,300,000 bushels) as compared with hardly 1,500,000 centals (2,700,000 bushels) during the same period of the preceding year.

The export figures of this year have also proved higher by 120,000 centals (220,000 bushels) than the corresponding very high figure of 1930, and exceed by nearly 50 per cent the average shipments of the same period of 1927-31, reckoned at 3,500,000 centals (6,300,000 bushels). In the total of exports of the period under review are included 1,000,000 centals (1,800,000 bushels) exported during the first quarter of the current year – a very high figure, which exceeds the corresponding exports of a long series of years if those of 1934 be omitted – and drawn from stocks of linseed voluntarily accumulated by the growers in the expectation of an improvement of prices on the international market. This policy of accumulation of stocks in the hands of the growers, the result of continued price decline, was expecially marked during the years 1931, 1932 and 1935, during which the volume of exports, in relation to the corresponding production figures, dropped to proportions very markedly below normal, while at the same time the Argentine crops were very large.

Information available on the new Indian harvest shows that sowings were made under good conditions; the results, however, depend intimately on the amount of winter rainfall.

Among the African countries the most important linseed-growing country is French Morocco. Here on an area nearly equivalent to that of last year but less than the average by some 22 per cent a crop has been obtained exceeding by 29.6 per cent. the very small one of 1935, which was seriously damaged by the spring drought, but at the same time 28.4 per cent. less than the average of the five preceding years.

To sum up, taking account of the estimates already available, which refer to the majority of the producing countries, and of the information relating to the crop for the other countries which have not yet made production estimates, world production of linseed in 1936-37 (not including the U. S. S. R.) may be estimated at between 62 and 64 million centals (110 and 114 million bushels) as compared with 56.7 (101.2) in 1935 and 63.7 (113.8) on the average of the preceding five-year period.

It follows that, in spite of seriously short harvests in North America and of the losses which have reduced Indian production, the 1936-37 linseed season may be classed among the years of fairly abundant harvests ,a position mainly due to the favourable results anticipated in Argentina and to the increase in European production.

THE POSITION OF THE PRINCIPAL LINSEED IMPORTING COUNTRIES.

In spite of the increase in exports of Indian linseed the net imports of the principal European and extra-European countries during the first ten months of the current year indicate in general an appreciable decrease as compared wich the corresponding figures of 1935; in fact, except for Great Britain and France, the net imports of which show increases respectively of 730,000 (1,300,000) and 640,000 (1,100,000) in comparison with those of the corresponding period of last year, all other countries have reduced the volume of their purchases.

Particularly noticeable has been the contraction of the imports into the Netherlands—about 2,200,000 centals (3,900,000 bushels) as compared with 1935 —a country occupying the first place in the European linseed-oil industry, and also into Germany, of which the net volume of imports has fallen during the period under review very much below the normal level. Among the extra-European countries the United States also show a considerable reduction of imports as compared with the figures of the preceding years.

In connection with the reduction in volume of linseed imports observed this year, it should be noted that in general the fluctuations in the quantities placed on the world market are to be attributed almost entirely to the variations in the Argentine harvests and to the surpluses on that market: thus, the drop in this year's imports is in close connection with the very poor Argentine production in 1935-36.

The world prices of linseed in 1936 have been favourably affected by the poor Argentine harvest of the last season: the progressive fall in prices since

Net imports of linseed of the principal European and extra-European countries.

(1,000 centals)

COUNTRIES	1936		1935		1934		1933		1932		Average 1927 31	
	Production	Net import 1)	Production	Net import	Production	Net import	Production	Net import	Production	Net import	Production	Net import
						I — European countries						
Germany	714	4,136	366	5,452	139	6,984	71	7,871	—	9,822	—	7,606
Netherlands	...	5,677	152	6,810	106	7,031	77	6,468	29	9,837	207	7,917
Great Britain	—	5,260	—	5 772	—	4,107	—	5,505	—	8,111	—	6 918
France	..	5,494	340	5,690	240	5,236	104	5,820	126	5,194	373	4,654
Belgium		1,792	240	2,612	161	1,722	134	2,685	112	3,532	262	2,423
Italy		(2)	49	1,590	46	1,422	51	1,653	68	1,512	143	1,376
Sweden		683	2	915	0	849	2	776	2	957	2	875
Czechoslovakia	134	399	126	578	95	556	60	300	53	796	139	534
Poland	.	0	1,553	0	1,221	170	994	284	919	269	1,418	220
Total	.	*23,441*	*2,838*	*29,419*	*2,008*	*28 077*	*1,493*	*31,362*	*1,309*	*40,030*	*2,544*	*32,523*
						II — Extra-European countries						
United States	3,308	6,255	7,908	9,833	2,919	7,934	3,890	7,743	6,537	4,434	10,613	10 168
Australia		489	4	750	4	560	4	487	2	474	20	478
Japan	.	(2)	82	476	100	432	82	472	49	148	60	249
Total	.	*6,744*	*7,994*	*11,059*	*3,023*	*8 926*	*3,976*	*8,702*	*6,588*	*5,056*	*10,693*	*10,895*
TOTAL OF BOTH GROUPS		**30,185**	**10,832**	**40,478**	**5,031**	**37,003**	**5,469**	**40,064**	**7,897**	**45,086**	**13,237**	**43 418**

1) Up to end of October — 2) Data not available

1929 of La Plata linseed in London, which in 1935 touched the lowest average of a long series of years, has been followed, since the beginning of 1936, by a very appreciable reaction, taking the form of a very considerable price rise In fact, during the first eleven months of the current year, prices have always been maintained at a higher level than the average of the four preceding years, and the average quotation for the month of August – the highest for the year – perceptibly approached the average for 1931, which exceeds by about one-fourth the averages for the four succeeding years.

As regards prices on the Argentine internal market, it should be noted that the Argentine Government, taking advantage of the emergency law of November 1933, raised the minimum basic price of linseed fixed during this period at 11.50 paper pesos per quintal, shipped at Buenos Aires, to 14 paper pesos, beginning from 12 December 1935.

The measure adopted by the Argentine Government was a consequence of the poor harvest estimated in advance for the 1935-36 season: the average prices ruling for the first eleven months of the current year have remained with slight fluctuations below the new minimum basic price established by the Government.

Prices of «La Plata» and «Bold Bombay» linseed in London

(Gold francs per quintal)

	"La Plata" (Delivery Hull)	"Bold Bombay" (Delivery London)
Annual average:		
1928	39 02	45 69
1929	45 29	51 47
1930	37 27	43 97
1931	20 18	26 35
1932	15 02	20 56
1933	15 59	19 00
1934	15 36	18 15
1935	14 35	18 24
Monthly average 1936		
January	16 58	20 08
February	16 25	19 48
March	16 29	19 32
April	16 22	19 47
May	16 21	19 37
June	16 82	19 94
July	17 75	21 28
August	18 05	22 91
September	18 01	21 23
October	16 79	19 86
November	16 51	20 08

The price curve of Indian linseed in London indicates in 1936 the same tendency to a rise and places in evidence the appreciable price recovery as compared with the averages of the four preceding years.

A. DI FULVIO

FLAX

Argentina: The latest monthly report of the Department of Rural Economy and Statistics of the Ministry of Agriculture of Buenos Aires, issued on 18 December, contains the following information on the linseed crop.

Province of Buenos Aires. — Linseed yields are normal over the main zone and the quality is good. In the Centre, yields are fair, but some of the acreage has been abandoned. In the South the crop is good.

Province of Córdoba. — Linseed shows irregular quality and yields.

Province of Santa Fé. — Linseed in the South and Centre is satisfactory but excessive moisture may cause damage. The first yields are poor

Entre Rios — Linseed is irregular.

COTTON

Greece: According to information received from the Greek Cotton Institute, weather conditions this year have been rather unfavourable to cotton production. The rains hampered the opening of the bolls and favoured the spread of boll worm. In spite of this information from the Cotton Institute, an unofficial source anticipates an abundant crop, due partly to the very considerable increase in area sown to cotton, and partly to a normal unit-yield per acre.

U. S. S. R.: According to information received from the Cotton Department 4,700 million pounds of unginned cotton had been picked and delivered to the State by 1 December. In the flooded fields the unit-yield was 1,150 lb. per acre of unginned cotton. Picking and delivery of cotton to the State was still in progress In 1937, i e, the last year of the second five-year plan, the crop of unginned cotton is expected to be 4,685 million pounds, therefore the plan has been realized a year in advance

United States (Report for the week ended 18 November) The picking of the crop was about finished in New Mexico and Oklahoma, The crop was nearly all gathered in Arkansas except in the eastern lowlands, where a considerable amount remains in the fields Picking and ginning made good progress in the northern part of South Carolina during the latter part of the week and picking was now nearly completed In north-western Texas snapping continued

(Report for the week ended 25 November) Good progress was made with the picking and ginning of the remnants of the cotton crop except in some of the eastern lowlands of Arkansas and in portions of South Carolina The work was nearly completed and picking in North Carolina was about three-fourths finished

Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1936/37	1935/36	Average 1930/31 to 1934/35	% 1936/37: 1935/1936 = 100	% 1936/37: Average = 100	1936/1937	1935/1936	Average 1930/31 to 1934/35	1936/1937	1935/1936	Average 1930/31 to 1934/35	% 1936/37: 1935/1936 = 100	% 1936/37: Average = 100
	1,000 acres					1,000 centals			1,000 bales of 478 lb				
Bulgaria . .	72	89	29	80 8	247 5	137	186	41	29	39	9	74 0	336 1
Greece 1) .	2) 176	110	62	159.5	284 6	2) 363	234	115	2) 76	49	24	155 5	317 2
Romania	4	2	2	159 0	222.0	...	3	1		1	3)	.	
Yugoslavia 1) .	5	4	3	136.1	175.4	. .	5	2	...	1	1	...	.
U S S R . .	4) 4,932	4,827	4,883	102 2	101.0	5) 14,571	11,670	8,480	5) 3,048	2,441	1,774	124 9	171 8
United States 6)	30,054	27,335	34,658	109.9	86 7	59,305	50,852	63,777	12,407	10,638	13,343	116 6	93 0
Mexico	755	599	349	126 0	216.4	1,717	1,198	930	359	251	195	143 4	184 6
China . .	7) 8,547	5,318	5,823	160 7	146 8	7) 18,670	10,853	11,806	7) 3,906	2,270	2,470	172 0	158 1
India 8) . .	23,901	24,130	23,380	99 1	102.2	21,912	21,476	18,028	4,584	4,493	3,772	102 0	121.5
Turkey . . .	625	520	469	120.1	133.2	2) 1,323	1,151	464	2) 277	241	97	114.9	284 6
Egypt	1,781	1,733	1,743	102.8	102 2	7) 9,356	8,454	7,076	7) 1,957	1,769	1,480	110 7	132 2
Nyasaland . . .	—	—	—	—	—	48	78	27	10	16	6	61.7	180.5

1) Area sown — 2) Unofficial estimate — 3) Under 500 bales - 4) Area sown up to 15 May, 1936, the area fixed by the Plan amounts to 4,979,000 acres — 5) Harvested on 1st December — 6) See *Summary of Government's Cotton Reports.* — 7) Second estimate — 8) Third estimate

(Report for the week ended 2 December): The picking of the remnants of the cotton crop made fairly good progress in the northern sections of the belt. Some damage has been done to open bolls in the Mississippi Delta counties. A considerable amount of cotton remains ungathered in some of the lowlands in the Mississippi Valley.

Summary of Government cotton reports, by cotton season:

	Provisional estimates for dates indicated 1936/37	Final estimates		Percent. 1936/37	
		1935/36	Average 1930/31 to 1934/35	1935/36 = 100	Aver. = 100
Report referred to 1 July:					
Area in cultivation (acres)	30,621,000	27,888,000	37,408,000	109.8	81.9
Report referred to 1 August:					
Area left for harvest (acres)	1) 29,924,000	2) 27,335,000	3) 34,658,000	109.5	86.3
Crop condition (per cent of normal)	72.3	73.6	4) 68.0	—	—
Production 5)	12,481,000	10,638,000	13,343,000	117.3	93.5
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 August 6)	41,130	94,346	85,520	43.6	48.1
Cotton ginned to 16 August 6)	208,327	316,930	345,824	65.7	60.2
Report referred to 1 September:					
Area left for harvest (acres)	7) 29,720,000	2) 27,335,000	3) 34,658,000	108.7	85.8
Crop condition (per cent. of normal)	59.1	64.5	4) 58.7	—	—
Production 5)	11,121,000	10,638,000	13,343,000	104.5	83.4
Yield of lint per acre, in lb.	179.2	186.3	4) 178.2	96.2	100.6
Cotton ginned to 1 September 6)	1,373,868	1,135,090	1,221,961	121.0	112.4
Cotton ginned to 16 September 6)	3,707,142	2,315,831	2,941,273	160.1	126.0
Report referred to 1 October:					
Crop condition (per cent of normal)	61.8	64.0	4) 58.1	—	—
Production 5)	11,609,000	10,638,000	13,343,000	109.1	87.0
Yield of lint per acre, in lb.	186.9	186.3	4) 178.2	100.3	104.9
Cotton ginned to 1 October 6)	6,030,940	4,232,068	5,484,000	142.5	110.0
Cotton ginned to 18 October 6)	8,567,676	6,590,402	8,282,604	130.0	103.4
Report referred to 1 November:					
Production 5)	12,400,000	10,638,000	13,343,000	116.6	92.9
Yield of lint per acre, in lb.	199.7	186.3	4) 178.2	107.2	112.1
Cotton ginned to 1 November 6)	9,880,068	7,743,612	10,101,588	127.6	97.8
Cotton ginned to 14 November 6)	10,766,378	8,436,538	11,317,391	127.6	95.1
Report referred to 1 December:					
Area in cultivation, on 1 July (acres)	30,932,000	27,888,000	37,408,000	110.9	82.7
Area left for harvest (acres)	8) 30,054,000	2) 27,335,000	3) 34,657,600	109.9	86.7
Production 5)	12,407,000	10,638,400	13,342,500	116.6	93.0
Yield of lint per acre, in lb.	197.6	186.3	4) 178.2	106.1	110.9
Cotton ginned to 1 December 6)	11,494,170	9,356,921	12,123,360	122.8	94.8
Cotton ginned to 13 December 6)	11,705,000	9,754,578	12,444,920	120.0	94.0

1) Area in cultivation on 1 July, less the ten-year, 1926-35, average abandonment, about 2.3 per cent. — 2) Area actually harvested; per cent. of abandonment about 2.0. — 3) Area actually harvested; the per cent. of abandonment, about 1.9, does not take into account about 10,495,000 acres ploughed-up in 1933 after 1 July, under Agricultural Adjustment Administration contracts. — 4) Ten-year, 1925-34, average. — 5) In bales of 478 lb. net weight and exclusive of linters. — 6) In running bales, counting round bales as half-bales and exclusive of linters. — 7) Area in cultivation on 1 July, less 2.9 per cent. of abandonment. — 8) Abandonment: 2.8 %.

(Comments relating to the Cotton report as on 1 December): Harvested area is now estimated at 30,054,000 acres, which is about 10 per cent. greater than the area harvested in 1935. During 1936 growing season the cotton crop was affected by two separate droughts. The first of these occurred in May and June and affected particularly the cotton crop in the Carolinas and Georgia. This drought retarded germination of cotton seed which had been planted, and as a result a considerable portion of the crop in that area did not come up until late June or early July. Subsequent favourable weather enabled the crop partly to overcome its lateness, but throughout the entire season cotton in the Atlantic Coast States was in serious danger of being curtailed by early frost and was faced with probability of some curtailment even with frost coming at the usual time. Frost did not actually arrive until ten days or two weeks later than usual with the result that the crop was enabled to reach maturity despite an unfavourable start. A favourable summer and fall resulted in an increase in the probable outturn in the Carolinas, Georgia and Alabama of 600,000 bales between 1 August and 1 December.

In the Western part of the belt, particularly in Texas and Oklahoma, the drought came later in the season. Although Texas had favourable prospects on 1 August extreme drought resulted in an estimated loss of over 800,000 bales in that month.

During the same month the prospective crop in Oklahoma was also reduced by over 200,000 bales. The effects of this drought were likewise felt throughout Arkansas, Louisiana, Tennessee, Missouri and Mississippi, although in this group of States the damage was worst in Arkansas.

On 1 September the outlook was very critical throughout all the area, but in early September the drought was broken. The rains came too late to bring back the crop in Texas and Oklahoma, but came in time to save the crop in States along the Mississippi River. In the latter group of States weather condition was unusually favourable during the remainder of the summer and fall, with the result that the outturn in these States promises to be about 360,000 bales higher than appeared likely on 1 August

One other factor which had a marked effect on crop outturn was that the drought reduced boll weevil damage to a minimum and many late bolls which ordinarily would have been ruined by weevils actually matured and made cotton. This lack of weevil damage, together with relatively late frost date, permitted the crops generally to reach full maturity and be harvested with minimum loss. The net result of this combination of factors has been that although prospects in Texas and Oklahoma declined approximately 1,080,000 bales after 1 August, this loss has been about balanced by the improvement in central and eastern portions of the belt.

India: In the Central Provinces picking, which had been retarded in November by heavy rain and hail, especially in Berar and Nagpur, continued in December

Madras had moderate rains in the latter half of November and first half of December and on 12 December crop condition was fair

The weather in the Punjab was dry during this period until the first week of December, when rainfall was general. Picking continued in December.

French Indo-China: The absence of rain was favourable to boll formation in Annam during October. Sowings, mixed with beans, were completed in Cambodia during the month.

Iran: The Cotton Company, established two years ago with the object of improving the crop, has taken over several thousands of hectares for cotton, which is being grown recently all over the country. The Company has also built special storehouses at Shiraz, Isfahan, Qum and Meshed for storing cotton in the best conditions.

Egypt: Cotton ginned up to the end of November, in bales of 478 lb. net weight:

Varieties	1936	1935	1934	1933	1932	1931	1930
Sakellaridis	63,650	93,540	83,540	91,180	103,390	121,540	163,410
Other varieties above:							
1 3/8"	265,840	204,570	117,890	98,010	57,370	561,880	588,780
1 1/4"	16,230	24,350	23,590	36,470	41,330		
1 1/8"	768,880	741,930	630,700	639,680	322,560		
Total	*1,114,600*	*1,064,390*	*855,720*	*865,340*	*524,650*	*683,420*	*752,190*
Scarto	22,200	21,580	16,860	16,370	11,770	17,100	16,550
Total production (including *Scarto*)	*)1,957,400	1,768,600	1,565,600	1,776,900	1,027,000	1,317,300	1,714,900

*) Second estimate

Uganda Weather during October still favoured the new cotton crop, which was reported to be in good condition

Tanganyika: Weather was mainly dry during October, except in the Moshi, Tanga and Mwanza districts, where showers and short storms were reported Harvesting was nearing completion; cotton planting was favourably reported in the Mbulu areas

HEMP

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936 1935 — 100	% 1936 Average — 100	1936	1935	Average 1930 to 1934	% 1936 1935 — 100	% 1936 Average = 100
	1,000 acres					1,000 pounds				
					Fibre.					
Germany 1)	14	9	1	154 8	1,787 3	9,929	8,238	—	120 5	—
Austria 2)	1	1	1	100 0	100 9	278	273	303	101 6	91.6
Bulgaria	15	16	11	92 0	133 7	7,094	7,495	4,173	94 6	170 0
France	9	8	8	115 0	124 1	10,205	8,262	7,342	123.5	139.0
Italy	...	166	157	.	.	...	142,077	140,905	...	...
Poland	83	84	79	99 5	105.8	...	26,681	29,215	...	..
Romania	124	115	110	108 7	112 7	...	50,090	53,240	...	...
Czechoslovakia	18	18	18	100 5	99 5	11,735	12,689	11,259	92.5	104 2
Yugoslavia	131	109	80	120.7	164.9	...	82,763	62,507	...	...
U. S. S. R.	...	1,495	1,961	...	...	..	...	426,287	...	...
Syria & Lebanon	...	12	5	...	...	...	7,035	2,630	...	...
					Hempseed.					
Germany	14	9	1	154 8	1,787 3	7,604	4,308	—	176.5	—
Austria	3)	3)	3)	100 0	86 2	1	1	1	112 5	80 6
Bulgaria	15	10	11	92 0	133 7	5,587	5,325	3,155	104 9	177.1
France	9	8	8	115 0	124 1	...	3,476	2,044	...	...
Poland	83	84	79	99.5	105.8	...	45,070	39,663	...	...
Romania	124	115	110	108 7	112 7	..	43,030	40,219	...	...
Czechoslovakia	18	18	18	100 5	99 5	7,580	8,509	7,484	89.1	101.3

---

1) Corresponding dates of the production, expressed in terms of air-dried-stalks « Rohstengel » are following: 1936 — 49,644,000 pounds, 1935 — 41,191,000 pounds — 2) Corresponding dates of the production expressed in terms of aix dried stalks are following 1936 — 1,389,000 pounds 1935 — 1,367,000 pounds; average 1930 to 1934 — 1,516,000 pounds. — 3) Area less than 500 acres.

HOPS

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1936	
				1933 = 100	Average = 100				1935 = 100	Average = 100
	1,000 acres					1,000 pounds				
Germany	25	25	25	99 3	100.3	...	18,941	16,370	...	...
Austria	...	...	1)	...	...	...	...	87	...	...
Belgium	2	2	2	106.8	127.0	...	2,535	2,009	...	...
France	5	5	5	103.7	93.5	3,646	5,098	3,637	71.5	100.2
Hungary	...	1)	1)	...	...	...	154	196	...	...
Engl and Wales	18	18	18	100.3	100.6	...	27.810	24,304	...	...
Poland	8	8	2) 6	109.3	144 9	...	3,732	2) 3,050	...	...
Romania	1)	1)	1)	34.1	34.1	...	52	49	...	..
Czechoslovakia	29	29	33	100.6	89.3	27,558	15,432	21,104	187.6	130.6
Yugoslavia	7	7	6	104.2	123.2	...	4,170	3,116	..	...
Canada	...	1	1	...	...	...	1,766	1,214	...	..
United States	31	39	26	79.5	119.2	23,300	47,746	31,566	48 8	73 6

1) Area under 500 acres. — 2) Average 1932 to 1934

TOBACCO

COUNTRIES	AREA					PRODUCTION				
	1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1936	
				1935 = 100	Average = 100				1935 = 100	Average = 100
	1,000 acres					1,000 pounds				
*Germany 1)	32	31	27	100.7	117 3	...	76,897	60,305	...	. .
*Belgium	7	8	7	85.1	97.7	. .	17,078	14,777	...	..
Bulgaria	92	86	67	107.3	136 6	66,838	60,684	53,527	110.1	144.2
Greece	243	198	195	122 8	124 7	160,697	101,550	103,617	158.2	155 1
Hungary	35	38	53	92 9	65.7	46,126	47,269	67,095	97.6	68 7
*Poland	...	13	12	...	..	...	24,260	16,139	...	. .
*Romania	45	44	40	101.6	112.9	...	28,738	24,082	...	. .
*Czechoslovakia	24	25	23	98.1	105.1	...	27,806	29,269	..	...
Yugoslavia	46	31	39	149 6	120 2	2) 33,069	20,390	26,141	162 2	126 5
*U.S S. R.	. .	487	459	...	...	...	. .	340,807	. .	...
*Canada	...	47	48	..	...	..	54,473	45,150	...	...
United States	1,467	1,437	1,706	102.1	86.0	1,162,637	1,296,810	1,336,559	89.7	87.0
Japan	87	87	86	100.7	101.1	142,353	149,055	146,039	95.5	97.5
*Palestine	...	...	4	...	...	...	...	1,528	...	...
*Syria and Lebanon	...	9	14	...	...	..	4,144	7,707	...	...
Turkey	2) 148	145	127	102.3	116.4	2) 99,208	79,376	82,631	125.0	120.1
*Algeria	49	57	54	85.6	89.4	...	41,648	40,395	...	...
TOTALS	**2,118**	**2,022**	**2,273**	**104.7**	**93.2**	**1,710,928**	**1,755,134**	**1,815,609**	**97.5**	**94 2**

* Countries not including in the totals — 1) Production for sale. — 2) Unofficial data

United States: The November estimates of area harvested and production of tobacco in 1936 compared with the final figures for the two preceding years are as follows:

Classification	Area *thousand acres* 1936	 1935	 1934	% 1936 — 1935 = 100	Production *thousand pounds* 1936	 1935	 1934	% 1936 — 1935 = 100
Flue-cured	876.9	874.1	684.0	100.3	688,330	811,195	556,780	84.9
Fire cured	135.6	142.6	152.0	95.1	104,782	118,194	132,868	88.7
Air-cured, light	312.6	315.7	339.9	99.0	245,422	248,458	278,395	98.8
Air-cured, dark	36.7	36.7	45.6	100.0	26,390	31,020	40,350	85.1
Cigar filler	38.8	37.8	31.8	102.7	47,692	46,793	38,150	101.9
Cigar binder	27.0	22.1	18.0	122.2	40,756	33,355	27,806	122.2
Cigar wrapper	9.0	8.0	7.0	112.5	9,265	7,795	7,280	118.9
TOTAL	**1,436.6**	**1,437.0**	**1,278.3**	**100.0**	**1,162,637**	**1,296,810**	**1,081,629**	**89.7**

Guadeloupe: The administrative services of the colony expect to give much importance to tobacco cultivation.

French Indochina. On account of the heat and lack of rain sowings were not in very good condition at the end of October and transplanting had to be delayed. In Cochin-China sowings were somewhat damaged by showers in the province of Giadinh; transplanting had begun almost everywhere for early crops in the highlands. In Cambodia nursery sowings seemed to be more numerous than in previous years.

Algeria: The yield appears to be at least normal.

OTHER PRODUCTS

Cacao.

Surinam. As the cultivation of the cocoa plant is in continual decrease, attention is given to the crop only at picking time. Cacao continues to be replaced by rice and orange plantations.

Gold Coast. MAJOR CROP. In October the weather conditions generally were about normal with rainfall slightly above the average. In Ashanti and the Central Province favourable weather was experienced but conditions for drying were only moderate, with an average of about 3 ½ hours of sunshine per day.

In the Eastern Province about seven hours sunshine per day were recorded, conditions both for growth and drying being moderate. In the farms the work was mainly confined to harvesting. Few flowers or small pods are seen on the trees. There are many half-grown pods and the number of mature pods was now at its maximum.

The incidence of diseases and pests of the trees was normal but pod diseases appear to be less than usual.

Early in October it was thought necessary to reduce the Ashanti figure (179,200 thousand lb) by 11,200 thousand lb, and later information confirms the need for this. The estimate is now 168 million lb. There are no changes in other Divisional estimates and the Colony total is therefore 526.4 million lb.

The distribution of the crop over the season is given below, expressed as the cumulative percentage ripe at the end of each month.

	% of whole crop ripe at end	
	September	October
Ashanti	30	60
Western Province	26	46
Central Province	23	51
Eastern Province	22	53
Trans-Volta	20	58
Weighted average	*25*	*54*

During October it is estimated that 56,000,000 lb. were marketed, bringing the total to 94,000,000 lb. for the season. Exports including the Eastern Frontier were between 54,000,000 and 56,000,000 lb. so that the stocks at the end of the month calculated from these figures should be about the same as at the end of September *i. e.* 69,000,000 lb. The latter is supported by the total of the stocks estimates for the different centres.

The state of the crop is as follows:

Harvested	174.7 mill. lb.
Ripe on the trees at end October	85.1 » »
Expected to ripen in November	123.2 » »
Maturing after November	143.4 » »
Total crop	*526.4* » »

The mean purity of the beans in October was 87.6 per cent. The average size was 124.3 per 14 cubic inches.

Crop movement in October 1936 compared with corresponding month last year, was as follows:

	October 1936	October 1935
	millions pounds	
Railway off-loading, Takoradi	24,5	11,6
Exports:		
Takoradi	15.7	10.0
Accra	27.3	21.5
Other ports	11.9	4.5
All ports	*54.9*	*36.0*
Eastern Frontier	0.6	—
Total exports	*55.5*	*36.0*

Nigeria: In the Southern Provinces the early rains were below normal, and, in consequence, the maturing of the cacao is later than usual. It is expected, however, that the total crop will not be very much below average.

Tea.

India: In North India weather in September was seasonable and crop prospects were fair to good. Up to the end of that month there was an increase of 7,700,000 lb. in the outturn compared with that up to the same date last year.

In South India the monsoon intensified toward the end of September and the crop showed a decline, outturn being 0.17 per cent behind that up to the same date last year. Prospects were fair.

French Indo-China: In Tonkin the October crop was poor on the pruned and unpruned plantations, but the quality was better than formerly. In the extreme north of Annam the crop was not so abundant as in September but was abundant in certain other northern districts, in Central Annam picking was in progress, yields were poor in the south.

Tanganyika: Tea planting was favourably reported in the Mutindi areas

Coffee.

Brazil According to the National Coffee Department the total quantity of Coffee destroyed from 1931 to the end of November 1936 was 51,810,000 centals, of which about 4,450,000 were destroyed during the first 11 months of the current year

Surinam During the third quarter of 1936 the weather was not unfavourable to coffee but ripening was retarded by the drought Some cases of disease have been notified but not enough to cause anxiety

French Indo China In Tonkin the crop of Arabica coffee, harvesting of which began during the second half of October, is not so good as that of last year Fruit-formation of the Shari and Robusta varieties was in progress in North Annam

Kenya Coffee crop prospects are generally satisfactory, but more rain is needed in some districts

Madagascar The coffee crop of the 1935-36 season is excellent as a result of the favourable weather conditions but above all because the young plantations on the north and south extremities of the eastern side of the island have begun to bear fruit and because the Mananjary plantations, devastated in 1934 by a cyclone, have been brought into efficiency again after remaining unproductive for a couple of seasons. Exportation rose from 105,160 centals during the first eight months of 1935 to 105.440 centals during the same period in 1936

Groundnuts.

French Indo-China In North Annam growth was good at the end of October, development was normal in Central Annam

Java and Madura. The Central Statistical Office of the Department of Economic Affairs in the Netherlands Indies communicates the following details on the groundnuts area·—

	1936 acres	1935 acres
Area harvested in October	68,900	56,600
Area harvested from 1 January-31 October	464,100	418,000
Area of standing crop at the end of October	132,500	108,200

Nigeria: In the North the groundnut season is now in full swing, and the crop is expected to be considerably is excess of that of last season There is an increased area under cultivation and the weather has been favourable in most districts.

Colza and sesame.

Germany: Crop condition on 1 December expressed according to the system in use in the country and compared with the figures for 1 December 1935 was as follows: winter colza: 2.8 as against 2.5; rape 2.8 as against 2.6.

Poland. On 15 November the crop condition of winter colza was 3.3 against 3.4 on 15 October and 3.6 on 15 November 1935.

Romania: Winter colza was sown on fairly large areas. It grew regularly and up to the beginning of December developed in satisfactory conditions.

Yugoslavia: According to the most recent estimate area cultivated to colza this year is about 60,000 acres against 40,100 in 1935 and 16,000 on the average of the five years ending 1934; percentages 149.6 and 375.4. The corresponding production is estimated at about 462,700 centals (925,400 bushels against 223,400 (446,700) and 91,600 (183,100); percentages 207,2 and 505,4.

French Indo-China: The out-of-season crop harvested in October in certain districts of Tonkin gave a very poor yield. On the other hand, the yield in Central Annam (Binh-dinh) was satisfactory.

Sericulture.

French Indo-China: Mulberry growth was slackening considerably in October in Tonkin and Annam, where the season was drawing to a close. Rearing in October produced good results in Northern and Central Annam.

Production of Fresh Cocoons.

COUNTRIES		QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
		1936	1935	Average 1930 to 1934	% 1936		1936	1935	Average 1930 to 1934	% 1936	
					1935 % 100	Average — 100				1935 = 100	Average — 100
		1,000 ounces					1,000 pounds				
Bulgaria		28	24	30	117.0	95.5	3,233	3,053	3,276	105.9	98 7
France		13	13	21	101.6	61.4	1,486	1,448	2,526	102.6	58.8
Chosen	s)	208	208	223	100.2	93.4	32,812	32,401	30,274	101.3	108 4
	t)	143	138	125	103.6	114.6	16,382	14,598	13,588	112.2	120.6
Japan	s)	2,298	2,448	2,795	93.9	82.2	342,207	365,215	419,273	93.7	81 6
	t)	2,826	2,883	3,220	98.0	87.8	316,534	313,255	376,677	101.0	84 0
Syria and Lebanon		32	30	64	106.7	50.3	1,711	2,050	4,932	83.4	34 7
TOTALS		**5,548**	**5,744**	**6,478**	**96,6**	**85,7**	**714,365**	**732,020**	**850,546**	**97.6**	**84.0**

s) Spring cocoons. — t) Summer-autumn cocoons.

FODDER CROPS

Germany: Crop condition on 1 December expressed according to the system in use in the country and compared with the figures for 1 November, 1936 and 1 December 1935 was as follows: clover 2.7 (2.6 and 2.6); pastures 2.9 (2.9 and 2.9).

According to the most recent estimate, the following are the figures of production of the chief fodder crops in 1936 compared with the corresponding statistics of 1935 and the average of the preceding five years —

		1936	1935	Average 1930–34	% 1936: 1935 = 100	% 1936: Average = 100
Clover.	(000 centals)	206,474	158,300	196,432	130.4	105.1
	(000 sh. tons)	10,324	7,915	9,821		
Alfalfa	(000 centals)	66,066	51,454	42,764	128.4	154.5
	(000 sh tons)	3,303	2,573	2,138		
Mangels	(000 centals)	762,037	765,254	702,112	99.6	108.5
	(000 sh tons)	38,101	38,262	35,105		
Permanent meadows .	(000 centals)	613,282	521,769	511,791	117.5	119.8
	(000 sh tons)	30,664	26,088	25,589		
of which						
Irrigated meadows .	(000 centals)	*35,012*	*33,051*	*43,529*	105.9	80.4
	(000 sh tons)	*1,756*	*1,652*	*2,176*		
Unirrigated meadows .	(000 centals)	*578,270*	*488,718*	*468,262*	118.3	123.5
	(000 sh tons)	*28,913*	*24,436*	*23,413*		

Irish Free State. The weather was broken, with drizzling rain, in November, but the general mildness favoured preservation of pasture. There were ample supplies of fodder.

France. The crop of annual green fodder, cabbages and turnips is satisfactory, lifting of mangels was completed in November under excellent conditions. In the mountainous regions the frosts stopped the growth of pasturage and the animals had to be withdrawn to the stables, in the lower regions field work on the meadows was carried out without difficulty, in the west the animals remained in the temporary and permanent meadows and could still be taken to pasture in the centre and south-west.

Below are the figures for the area and outturn of the principal fodder crops and permanent hay meadows, last month's figures having been corrected and completed.

Area (Thousand acres)

	1936	1935	Average 1930–34	% 1936: 1935 = 100	% 1936: Average = 100
Annual fodder crops(1)					
Mangels	2,137	2,174	2,085	98.3	102.5
Swedes and kohl-rabis	448	507	538	88.3	83.2
Green fodder crops (leguminous, graminaceous and mixed) . .	1,831	1,850	1,775	99.0	103.1
Total (1) . . .	*4'416*	*4,531*	*4,398*	*96.3*	*100.4*
Rotation meadows for hay					
Leguminous (alfalfa, clover, sainfoin)	7,404	7,365	7,234	100.5	102.4
Graminaceous and mixed, graminaceous and leguminous . . .	1,308	1,362	1,256	96.0	104.1
Total . . .	*8,712*	*8,727*	*8,490*	*99.8*	*102.6*
Permanent meadows for hay	*13,859*	*13,767*	*13,561*	*100.7*	*102.2*

Production (Thousand centals).

	1936	1935	Average 1930-34	% 1936	
				1935 = 100	Average = 100
Annual fodder crops (1):					
Mangels	695,240	687,684	661,686	101.1	105.1
Swedes and Kohl-rabis	80,373	83,804	90,829	95.9	88.5
Green fodder crops (leguminous graminaceous and mixed) . . .	328,852	283,443	270,977	116.0	121.4
Rotation meadows for hay					
Leguminous (alfalfa, clover sainfoin)	281,115	243,890	259,483	115.3	108.3
Graminaceous and mixed graminaceous and leguminous . . .	40,391	36,561	36,966	110.5	109.3
Permanent meadows for hay . . .	424,219	373,026	413,561	113.7	102.6
Total of hay . . .	*746,266*	*653,477*	*710,010*	*114.1*	*105.0*

(Thousand tons).

	1936	1935	Average 1930-34	% 1936	
				1935 = 100	Average = 100
Annual fodder crops (1)					
Mangels	34,762	34,384	33,084	101.1	105.1
Swedes and kohl-rabis	4,019	4,190	4,541	95.9	88.5
Green fodder crops (leguminous, graminaceous and mixed) . . .	16,442	14,172	13,549	116.0	121.4
Rotation meadows for hay					
Leguminous (alfalfa, clover, sain foin)	14,056	12,194	12,974	115.3	108.3
Graminaceous and mixed graminaceous and leguminous . . .	2,020	1,828	1,848	110.5	109.3
Permanent meadows for hay	21,211	18,651	20,678	113.7	102.6
Total of hay . . .	*37,287*	*31,673*	*35,500*	*114.1*	*105.0*

(1) Not including cabbages for stock (593,000 acres, 152,816,000 centals and 7,641,000 tons average in the five years ending with 1934.

The very general decrease in areas dedicated to various fodder crops, especially to annuals, ought to be emphasised, as these had been more or less continually on the increase till 1935. It would appear that this decrease is due principally to the somewhat unsatisfactory situation of breeding. On the other hand, unit-yields have in general been satisfactory and the outturn of fodder, considerably more abundant than last year and somewhat above the average, is fully sufficient to ensure food for the animals throughout the winter.

Great Britain and Northern Ireland: The weather in November was in England and Wales generally not too favourable, being stormy particularly in the West and North in the first half of the month, but in Scotland was generally satisfactory. In some parts of Scotland, however, turnip diseases were troublesome, while in England and Wales the roots are in some districts smaller than usual. Quality of mangels in England and Wales is generally good and the roots are of medium size

Pastures in England and Wales had more keep than usual for the time of year. Supplies of winter keep were anticipated to be adequate both there and in Scotland. In England and Wales the poor quality of the available hay accentuated the seasonal fall in milk yields in some districts.

The following table shows the production of turnips and swedes and of mangels in Scotland.

		1936	1935	Average 1930 1934	% 1936	
					1935 = 100	Average = 100
Turnips and swedes .	(000 centals)	132,787	127,926	119,150	103.8	111.4
	(000 sh. tons)	6,639	6,396	5,958		
Mangels	(000 centals)	1,593	1,142	598	139.4	266.5
	(000 sh. tons)	80	57	30		

Hungary. Toward 20 November it was estimated that reserves of feed were roughly sufficient for requirements In some districts there was even talk of a surplus.

Italy Fodder crops have good growth. The last cut of meadows was good.

Poland On 15 November the crop condition of clover was 3 1 against 3 2 on 15 October and 3.4 on 15 November 1935

United States. The following table shows the area and production of alfalfa, clover and timothy and wild hay

Area in thousands of acres

	1936	1935	Average 1930 34	% 1936	
				1935 = 100	Average = 100
Alfalfa	14,333	13,781	12,110	104 0	118 4
Clover and timothy	22,425	20,230	23,898	110.9	93.8
Wild hay	11,000	12,300	12,075	89.4	91.1

Production

		1936	1935	Average 1930 34	1935 = 100	Average = 100
Alfalfa	(000 centals)	498,060	574,520	453,604	86 7	109.8
	(000 sh tons)	24,903	28,726	22,680		
Clover and timothy .	(000 centals)	431,840	525,260	489,152	82.2	88.3
	(000 sh. tons)	21,592	26,263	24,458		
Wild hay	(000 centals)	143,940	226,760	175,668	63,5	81.9
	(000 sh. tons)	7,197	11,338	8,783		

Algeria: Owing to the abundant rains which had fallen, by the end of November artificial fodder crops, particularly vetch and oats, had sprouted well and the pasture were commencing to look green in the coastal region and Tell. On the high plateaus on the other hand, the cold hampered the growth of grass; grazing was scarce in several parts of the southern territories

French Morocco: The drought which prevailed from 15 October to 20 November arrested the growth of grass during the entire period. The abundant rains which fell after 20 November throughout eastern Morocco have replenished the pastures and grazings

LIVESTOCK AND DERIVATIVES

Pigs in Denmark.

(Thousands)

Classification	1936								1935			
	21 Nov	10 Oct	29 Aug	18 July	13 June	2 May	21 Mar	8 Feb	28 Dec	16 Nov	5 Oct	24 Aug
Boars for breeding	22	23	23	23	24	23	22	21	21	21	21	21
Sows in farrow for first time	52	58	77	111	125	126	117	95	97	97	86	75
Other sows in farrow	185	182	178	184	189	182	172	175	181	181	178	184
Sows in milk	90	108	122	108	99	93	100	96	90	89	98	90
Sows not yet covered (and not for slaughter)	39	42	39	30	27	25	25	23	21	26	29	25
Sows for slaughter	26	28	22	16	15	14	15	18	16	17	14	9
Total of sows	*392*	*418*	*438*	*449*	*455*	*440*	*429*	*407*	*405*	*410*	*405*	*383*
Sucking pigs not weaned	730	892	1,006	887	810	768	819	779	732	766	860	782
Young and adult pigs for slaughter												
Weaned pigs under 35 kg	1 010	1 024	947	843	826	852	826	816	885	882	792	742
Pigs of 35 and under 60 kg	811	756	696	761	700	686	700	722	723	674	683	693
Fat pigs of 60 kg and over	551	556	608	540	559	562	558	518	450	565	534	545
Total pigs	*3 516*	*3,669*	*3 718*	*3 503*	*3,374*	*3 331*	*3 354*	*3 263*	*3 216*	*3 318*	*3,295*	*3,166*

Livestock and beehives in Estonia.

CLASSIFICATION	15 June				
	1936	1935	1934	1933	1929
Horses	*215 910*	*217 810*	*211 510*	*209 950*	*205 448*
Foals under 1 year	14 390	17 120	14 050	12 420	7 908
Foals from 1 to 3 years	25 540	25,210	21 280	20 080	18 631
Horses 3 years old and over	175 980	175 480	176 180	177 450	178 909
Cattle	*731 120*	*725 400*	*676 250*	*681 700*	*603 949*
Calves under 1 year	120 460	125 510	105 030	98 000	86 891
Heifers 1 year old and above	175 360	161 020	131 120	122 500	82 727
Cows	398 750	402 660	406 730	427 330	406 567
Bulls and oxen	36 550	36 210	33 370	33 870	27 769
Sheep	*584 040*	*593 150*	*552 070*	*541 380*	*475 935*
Lambs under 1 year old	290 150	295 380	269 020	261 250	216 950
Sheep 1 year old and above	293 890	297 770	283 050	280 130	258 985
Goats	*2 200*	*2 100*	*2 100*	*2 100*	*2 002*
Pigs	*244 560*	*289 190*	*281 660*	*277 130*	*279 080*
Young pigs under 6 months old	*123 700*	152 230	148 950	151 570	145 044
Pigs 6 months old and above	120 860	136 960	132 710	125 560	134 036
Poultry	*1 248 930*	*1 213 370*	*1 194 470*	*1 213 020*	*1 022 709*
Cocks 6 months old and above	99 830	99 560	97 900	100 190	92 910
Hens 6 months old and above	1 047 480	1 009 270	995 340	1 015 130	853 309
Ducks	70 540	77 310	76 850	72 000	56 475
Other poultry	31 080	27 230	24 380	25 700	20 015
Beehives	*74,100*	*65 900*	*59 480*	*54 240*	*47,972*

Livestock in Italy.

Below are given provisional figures of livestock in Italy in January 1936, compared with the census data of March 1930 (thousand of heads):

	Estimate 1 January 1936 1)	Census 19 March 1930		Estimate 1 January 1936 1)	Census 19 March 1930
Horses	816	979	Cattle	7,245	7,094
Asses	805	905	Sheep	8,862	10,269
Mules and hinnies .	422	481	Goats	1,795	1,893
Buffaloes	13	15	Pigs	3,206	3,322

1) These date do not include army animals.

Poultry and beehives in Latvia.

CLASSIFICATION	1935	1934	1933	1932	1931	1930	1929
				Thousands			
Cocks, hens and chickens	3,633.5	3,038.4	2.994,5	2.921,7	2,707.5	2,378.3	1,853.7
Ganders, geese and goslings	153.7	126.9	119.5	96.8	84.5	77.5	59.7
Drakes, ducks and ducklings	224.8	207.9	217.4	195,7	174.2	153 2	84.1
Turkeys	79.8	71.8	64.5	54.0	40.8	29.7	18.5
Beehives	163.9	136.6	125.5	117.8	108.2	—	85.0

Livestock in Norway.

CLASSIFICATION	20 June 1936	20 June 1935	20 June 1934	20 June 1933	20 June 1932	20 June 1931	20 June 1930
Horses	185,468	182,614	181,325	180,183	179,068	176,823	176,898
Cattle	1,348,446	1,328,239	1,294,497	1,339,833	1,341,787	1,309,656	1,250,672
Goats	331,350	334,015	337,697	343,042	342,525	344,352	333,141
Sheep	1,748,600	1,736,687	1,697,698	1,764,050	735,932	1,692,406	1,588,186
Pigs	410,000	410,000	550,000	420,000	303,966	317,343	338,859
Poultry (adult)	3,471,933	3,436,544	3,512,716	3,543,658	3,503,001	3,323,991	3,098,184

Livestock in the Soviet Union.

In the following table are given the numbers of livestock in the Soviet Union for the last twenty years. For the last three years, from 1934 to 1936, the data refer to two dates, 1 July and 1 January, but for the preceding years to 1 July only.

<table>
<tr><th rowspan="2">YEARS</th><th colspan="2">CATTLE</th><th rowspan="2">HORSES</th><th rowspan="2">SHEEP</th><th rowspan="2">GOATS</th><th rowspan="2">PIGS</th></tr>
<tr><th>TOTAL</th><th>COWS</th></tr>
<tr><td>1 July 1936. . . .</td><td>56,500,000</td><td>22,100,000</td><td>16,600,000</td><td colspan="2">73,300,000</td><td>30,400,000</td></tr>
<tr><td><i>1 January 1936</i>. . . .</td><td><i>45,843,800</i></td><td><i>19,916,200</i></td><td><i>15,429,000</i></td><td colspan="2"><i>49,723,800</i></td><td><i>25,735,800</i></td></tr>
<tr><td>1 July 1935. . . .</td><td>49,255,600</td><td>20,147,100</td><td>15,881,300</td><td>54,228,100</td><td>6,823,200</td><td>22,550,100</td></tr>
<tr><td><i>1 January 1935</i>. . . .</td><td><i>38,869,300</i></td><td><i>19,031,300</i></td><td><i>14,936,300</i></td><td><i>36,363,200</i></td><td><i>4,407,800</i></td><td><i>17,116,200</i></td></tr>
<tr><td>1 July 1934. . . .</td><td>42,421,700</td><td>19,544,400</td><td>15,649,200</td><td>46,848,800</td><td>5,075,900</td><td>17,449,800</td></tr>
<tr><td><i>1 January 1934</i>. . . .</td><td><i>33,528,900</i></td><td><i>19,037,600</i></td><td><i>15,363,500</i></td><td colspan="2"><i>36,498,400</i></td><td><i>11,505,200</i></td></tr>
<tr><td>1 July 1933. . . .</td><td>38,380,200</td><td>19,550,700</td><td>16,578,900</td><td colspan="2">50,223,600</td><td>12,067,600</td></tr>
<tr><td>1 July 1932. . . .</td><td>40,650,700</td><td>21,027,600</td><td>19,638,000</td><td colspan="2">52,140,500</td><td>11,611,400</td></tr>
<tr><td>1 July . 1931. .</td><td>47,916,000</td><td>24,413,400</td><td>26,246,700</td><td colspan="2">77,692,100</td><td>14,442,500</td></tr>
<tr><td>1 July 1930. . .</td><td>52,485,800</td><td>26,693,000</td><td>30,236,800</td><td colspan="2">108,758,300</td><td>13,559,000</td></tr>
<tr><td>1 July 1929 . . .</td><td>67,111,900</td><td>30,359,600</td><td>34,637,900</td><td>133,676,700</td><td>13,299,400</td><td>20,384,400</td></tr>
<tr><td>1 July 1928 . . .</td><td>70,541,400</td><td>30,741,400</td><td>33,536,800</td><td>133,265,500</td><td>13,433,000</td><td>25,989,000</td></tr>
<tr><td>1 July 1927 . . .</td><td>68,034,000</td><td>29,927,800</td><td>31,564,300</td><td>126,512,100</td><td>13,218,200</td><td>23,076,300</td></tr>
<tr><td>1 July 1916. . . .</td><td>60,563,300</td><td>26,032,400</td><td>35,771,000</td><td>113,014,800</td><td>8,186,800</td><td>20,875,400</td></tr>
</table>

In relation to 1916 the year 1928 showed a considerable increase in cattle, sheep, goats and pigs and only for horses was the 1929 figure smaller than that of 1916. With 1928 begins a rapid decline, which is checked for pigs in 1932, for cattle, sheep and goats in 1933 and for horses in 1934.

In consequence, when the most difficult period of collectivization was passed, the numbers increased more or less rapidly according to species. For 1 July there is a more marked increase for pigs, which much more than doubled in number between 1932 and 1936 (with an increase of 162 per cent); the increase for all cattle between 1934 and 1936 was about 47 per cent while that for cows was about 13 per cent; the number of sheep and goats increased in practically the same proportion as that of cattle, namely 46 per cent; finally the increase in horses, which began in 1935, was only about 6 per cent. With respect to the maximum attained in 1928 for cattle and pigs and in 1929 for horses, sheep and goats, the 1936 data (1 July) represent about 117 per cent for pigs, 80 per cent for cattle (72 per cent for cows), about 50 per cent for sheep and goats and 48 per cent for horses.

It is important to note that the number of tractors in Soviet agriculture, which was 26,733, with a horse-power of 278,100 on 1 January 1928, rose to 379,490 and 6,543,000 horse-power on 1 January 1936.

Current information on livestock and derivatives.

Irish Free State: Milk yields in November were rather above the average for the season.

France: The decrease registered in November in milk yield is normal for the season.

Netherlands: During November there was sufficient fodder for milk cows. In comparison with the corresponding figures for last year the milk yield has risen throughout the country by about 6 per cent. In Utrecht, Southern Holland and Limbourg the yield was not far from normal; in Zeeland the production fell by 5 per cent.; the increase in the other provinces varied from 7 to 10 per cent.

Algeria: Condition of livestock was not much improved at the end of November, the bite offered by pasturage being still too full of moisture. Generally speaking the health of the animals was good; in several localities, however, parasitic diseases caused the death of numerous sheep, particularly scab, which caused considerable losses among ewes and young lambs in Oran; in southern Algiers the flocks of sheep suffered from the cold which prevailed during the second half of November and 4 per cent of the animals, unable to resist the cold, perished.

French Morocco: The animals suffered from the drought which prevailed from 15 October to 20 November and also from lack of bite on the grazings. both the quantity and the quality fo the grass being unsatisfactory; European farmers gave supplementary rations. At the end of November the animals were in most cases exceedingly thin but their general condition was fairly good. The abundant rains which fell after 20 November throughout western Morocco considerably improved the situation.

Union of South Africa: In the southwest of Cape Province grazing and cattle were in reasonably good condition at the end of October. In the northwest and sonth coast areas, however, livestock were in poor condition owing to the drought. In the Karroo districts light rains fell and there was still sufficient grazing and water and both large and small stock were in good condition, as also in Bechuanaland and in the northeast of the Cape Province.

In Natal good spring rains fell during October . The veld was growing rapidly and livestock were improving

In the Orange Free State grass was coming on rapidly as a result of the rains and livestock were doing well Lambing was very satisfactory and it was estimated that the lamb crop was bigger than last year.

Good showers fell over a large section of the Transvaal but in the western highveld area it was still very dry and there was some anxiety.

LATEST NEWS

Hungary (Telegram of 21 December) Early sowings of winter cereals are fairly well developed but others are generally backward

United States Sowings of winter wheat cover an area of 57,187,000 acres, 15.1 per cent above the 49,688,000 acres of 1935-36 and 27.1 per cent above the average of 44,999,000 acres for the five years ending 1934-35 This is one of the highest figures of winter wheat sowings in recent years Crop condition on 1 December was 75 8 against the corresponding figure of 78 2 last year.

Winter rye has been sown over an area of 7,673,000 acres, an increase of 17.2 per cent. on the 6,547,000 acres of last season and one of 38.5 per cent. on the five-year average of 5,538,000 acres This is also an exceptionally high figure. Crop condition on 1 December was 71 0 against 69 1 last year.

According to the most recent estimate area cultivated to groundnuts this year is about 1,744,000 acres against 1,642,000 in 1935 and 1,415,000 on the average of the five years ending 1934; percentages 106.2 and 123.3. The corresponding production is estimated at about 1,301,000 thousand pounds against 1,264,455 and 970,320; percentages 102.9 and 134.1.

India: The following are the third estimates of cotton area and the first estimates of production for the Punjab and Madras, compared with the corresponding estimates for 1935-36 and the corresponding averages for the five years ending 1934-35.

	1936-37	1935-36	Average 1930-31/1934-35	% 1936-37 1935-36 = 100	% 1936-37 Average = 100
		Area (000 acres).			
Punjab	3,686	3,393	2,615	108.6	140.9
Madras	1,982	2,204	1,766	89.9	112.2
		Production (000 bales of 478 lb.).			
Punjab	1,157	1,075	566	107.6	204.5
Madras	345	382	305	90.4	113.0

In Northern India the weather continued seasonable during October and crop prospects of tea were fairly good. Up to the end of October there was an increase of 5,283,600 lb. as compared with the outturn to the same date last year.

In South India seasonable conditions also prevailed and crop prospects were satisfactory. The outturn was 0.25 per cent behind that to the same date last year.

Siam: In sixty provinces up to the end of October approximately 6,865,000 acres had been sown to rice, a decrease of 8.8 per cent on the 7,526,000 acres sown up to the same date in 1935-36. There was a heavy increase in the area damaged, due largely to lack of rainfall and to flood, crabs and insects. This damaged area amounts to 856,000 acres, an increase of 28.8 per cent. on the 664,000 acres reported at the same date last season. The crop was doing well in 13 provinces, fairly well in 26 and not very well in 21.

Egypt: In the first decade of December harvesting of *nili* rice was progressing. That of *sefi* rice was over by the end of November.

Unit-yield of *nili* rice was expected slightly to exceed the average, that of *sefi* rice to exceed the average by approximately 10 per cent.

Australia (Telegram of 21 December): In Western Australia harvesting of wheat is proceeding in good conditions but yield is expected to be very poor. In New South Wales and Victoria the harvest is also in full swing, the former reporting very good conditions and the latter expecting a plentiful yield. In South Australia the weather during the last month was favourable and crop condition is good.

TRADE

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
	Wheat. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	659	161	0	0	1,656	346	0	0	683	0
Hungary	1,336	935	0	0	5,194	2,258	0	0	8,164	0
Lithuania	0	117	0	0	0	130	0	0	1,274	0
Poland	126	192	0	0	829	306	0	0	1,164	0
Romania	...	...	...	...	1) 7,057	1) 915	1) 0	1) 0	3,521	2
Yugoslavia	1,243	2	0	0	4,389	2	0	0	368	0
U. S. S. R.	0	3,759	0	0	7	10,485	0	0	16,801	134
Canada	16,151	17,353	40	0	41,277	40,735	42	0	139,214	9
Argentina	3,543	4,471	—	—	7,974	16,854	—	—	39,328	—
Chile	...	...	...	...	1) 0	1) 62	1) 0	1) 0	1,314	0
Syria and Lebanon	150	13	0	0	258	26	0	2	181	7
Algeria	...	...	...	...	2) 432	2) 364	2) 0	2) 11	5,523	653
French Morocco	24	176	249	0	42	957	273	0	2,919	0
Tunis	2	377	29	11	15	1,426	141	37	2,421	183
Australia	955	3,843	0	0	6,133	8,669	0	0	43,936	0
New Zealand	...	...	...	...	2) 0	2) 0	2) 37	2) 7	0	266
Importing Countries:										
Germany	0	53	77	183	42	273	258	487	99	2,138
Austria	0	0	467	249	0	0	1,135	547	0	3,192
Belgium	93	117	2,070	3,159	223	245	7,445	7,610	970	24,317
Denmark	7	4	467	414	37	20	1,122	1,142	35	5,152
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	44	0	0	84	84
Irish Free State	0	0	959	421	0	0	1,885	1,653	0	8,259
Finland	0	0	88	137	0	0	403	388	0	1,618
France	42	236	498	1,759	743	2,251	1,795	5,110	8,644	16,056
Gr. Brit. and N. Irel.	68	77	9,938	11,096	326	148	26,819	27,196	734	114,400
Greece	...	...	...	...	1) 0	1) 0	1) 1,847	1) 1,667	0	8,823
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	216	0	0	0	699	0	0	926	0
Norway	0	0	247	231	0	0	604	712	0	3,382
Netherlands	18	2	761	1,250	22	4	2,282	3,563	4	11,367
Portugal	...	...	...	...	1) 0	1) 0	1) 13	1) 40	2,443	152
Sweden	132	260	132	117	761	858	333	289	2,119	1,010
Switzerland	0	2	968	944	2	2	2,630	2,866	2	10,002
Czechoslovakia	0	0	0	88	24	2	4	1,215	4	1,303
United States	556	9	3,206	3,951	981	22	11,107	8,724	163	31,791
Ceylon	—	—	9	9	—	—	31	35	—	99
China	...	...	...	...	1) 406	1) 44	1) 110	1) 1,177	160	3,735
India	1,195	68	0	0	2,235	123	2	0	439	298
Japan	—	—	..	...	—	—	1) 844	1) 994	—	8,400
Egypt	...	...	...	...	1) 0	1) 0	1) 0	1) 0	2	2
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 0	1) 7	0	24
Totals	**26,300**	**32,443**	**20,205**	**24,019**	**81,065**	**88,270**	**61,162**	**65,479**	**284,839**	**257,358**
	Rye. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	0	254	11	60	0	514	24	172	820	690
Bulgaria	29	0	0	0	33	0	0	0	121	0
Estonia	49	51	174	0	77	97	174	0	333	331
Hungary	93	42	0	0	573	115	0	0	209	0
Latvia	64	342	0	0	560	657	0	0	2,041	0
Lithuania	11	187	0	0	46	373	0	0	1,973	0
Poland	631	456	0	0	1,825	1,217	0	0	4,782	0
Romania	...	...	...	..	1) 190	1) 0	1) 0	1) 0	348	0
Sweden	0	44	15	4	4	209	24	4	904	18
U. S. S. R.	194	128	—	—	747	470	—	—	2,288	—
Canada	201	4	0	0	800	75	0	0	1,376	0
Argentina	514	172	—	—	1,034	406	—	—	2,273	—
Algeria	...	...	...	...	2) 11	2) 7	2) 0	2) 0	26	0
Importing Countries:										
Austria	0	0	245	0	0	0	899	0	2	994
Belgium	0	0	101	498	7	18	642	966	26	3,680
Denmark	0	0	692	432	0	0	1,598	1,235	0	4,173
Finland	0	0	60	93	0	0	97	161	0	1,504
France	0	0	4	11	0	0	20	20	0	29
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	276	351	0	0	767	1,193	0	3,358
Netherlands	265	15	55	35	441	18	315	229	77	1,748
Switzerland	0	0	11	29	0	0	29	49	0	353
Czechoslovakia	0	0	2	2	0	0	4	4	4	18
United States	0	0	445	115	0	2	1,420	970	4	1,221
Totals	**2,051**	**1,695**	**2,091**	**1,630**	**6,348**	**4,178**	**6,013**	**5,003**	**17,607**	**18,117**

---

1) 2) See notes page 937.

COUNTRIES	October				Three months (August 1-October 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
	Wheat flour. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Germany	4	60	0	4	37	73	2	7	758	31
Bulgaria	24	0	0	0	44	0	0	0	0	0
Spain	—	—	—	—	—	—	—	—	—	—
France	229	322	117	152	620	767	317	331	3,197	1,226
Hungary	152	227	0	0	348	485	0	0	1,248	0
Italy	—	—	—	—	—	—	—	—	—	—
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	201	223	0	0	520	437	0	0	2,163	0
Romania	...	...	...	...	1) 2	1) 2	1) 0	1) 0	2	0
Yugoslavia	13	7	0	0	37	18	0	0	75	0
U. S. S. R.	174	62	11	37	450	212	24	267	741	425
Canada	911	983	15	9	2,412	2,496	37	26	9,758	121
United States	631	615	11	2	2,033	1,691	24	7	6,733	88
Argentina	141	207	—	—	448	538	—	—	1,759	—
Chile	...	...	...	...	1) 0	1) 18	1) 0	1) 2	73	31
India	33	55	2	0	108	132	9	2	403	11
Japan	...	...	...	...	1) 216	1) 950	1) 110	1) 2	4,112	243
Algeria	...	...	...	...	2) 73	2) 53	2) 4	2) 9	842	88
French Morocco	2	0	0	0	9	0	0	0	4	0
Tunis	37	37	9	0	117	126	42	2	410	31
Australia	928	1,193	0	0	2,562	3,206	0	0	12,148	0
Importing Countries,										
Austria	0	0	51	93	0	0	137	223	2	750
Belgium	4	7	9	2	29	15	46	15	60	90
Denmark	2	2	18	35	9	11	35	71	22	218
Estonia	0	0	0	0	0	0	0	0	0	0
Irish Free State	0	0	18	18	0	0	40	40	0	159
Finland	0	0	26	66	0	0	115	192	0	688
Gr. Brit and N. Irel.	223	220	620	908	615	712	2,026	2,211	2,652	9,528
Greece	...	...	...	..	1) 0	1) 0	1) 2	1) 2	0	22
Norway	0	0	146	115	0	2	223	198	4	884
Netherlands	0	0	99	108	9	2	362	240	7	1,206
Portugal	—	—	...	...	—	—	1) 7	1) 22	—	97
Sweden	4	2	0	0	7	4	0	0	18	0
Czechoslovakia	0	0	2	0	2	2	2	2	7	24
Ceylon	—	—	49	35	—	—	110	106	—	337
China	. .	. .	. .	...	1) 134	1) 2	1) 93	1) 179	22	842
Indo-China	...	.	...	. .	1) 0	1) 0	1) 86	1) 60	0	390
Java and Madura	—	—	...	...	—	—	1) 157	1) 148	—	1,281
Syria and Lebanon	29	2	0	2	71	7	7	29	121	77
Egypt	...	...	...	...	1) 0	1) 0	1) 7	1) 9	0	77
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 2	1) 2	2	13
New Zealand	...	...	...	...	2) 0	2) 0	2) 7	2) 13	0	216
Totals	**3,742**	**4,224**	**1,203**	**1,586**	**10,912**	**11,961**	**4,033**	**4,417**	**47,343**	**19,194**
	Barley. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Bulgaria	84	13	0	0	146	33	0	0	44	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	35	13	0	26	108	55	0	26	282	362
Lithuania	0	4	0	0	0	7	0	0	328	0
Poland	1,034	1,012	0	0	2,681	1,909	0	0	7,727	0
Romania	...	...	...	...	1) 4,656	1) 1,967	1) 0	1) 0	4,065	0
Czechoslovakia	384	168	0	0	655	240	0	0	805	2
Yugoslavia	4	0	0	4	7	0	0	15	2	24
U. S. S. R.	0	2,332	—	—	185	7,679	—	—	14,125	—
Canada	1,971	364	0	0	4,193	827	0	0	3,684	0
United States	218	547	668	4	1,473	1,759	2,150	13	4,711	337
Argentina	443	317	—	—	933	639	—	—	4,416	—
Chile	...	...	—	—	1) 311	1) 51	—	—	617	—
India	0	0	2	7	7	2	7	35	40	121
Algeria	...	...	...	...	2) 306	2) 40	2) 176	2) 55	789	575
Egypt	...	...	...	...	1) 66	1) 0	1) 2	1) 0	2	13
French Morocco	884	18	0	0	3,084	243	0	0	3,192	0
Australia	24	159	0	0	115	384	0	0	1,241	0
Importing Countries:										
Germany	0	0	2	15	0	0	33	216	0	1,532
Austria	0	0	82	154	0	0	295	337	0	1,175
Belgium	22	24	1,563	1,473	95	68	3,598	3,023	456	9,246
Denmark	412	273	86	0	620	717	88	73	1,539	77
Irish Free State	0	0	0	2	0	4	0	2	7	452
France	0	0	937	467	0	0	2,560	928	0	5,057
Gr. Brit. and N. Irel.	0	0	3,245	3,860	0	0	7,665	8,499	4	22,254
Greece	...	...	..	...	1) 0	1) 0	1) 11	1) 11	0	154
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	40	86	0	0	161	157	0	337
Netherlands	132	40	551	703	265	71	1,250	1,964	214	6,605
Switzerland	0	0	282	454	0	0	503	686	0	2,546
Syria and Lebanon	346	37	0	0	783	137	0	2	928	7
Tunis	0	346	223	7	0	981	648	20	1,667	130
Totals	**5,993**	**5,667**	**7,681**	**7,262**	**20,689**	**17,813**	**19,147**	**16,062**	**50,885**	**51,006**

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
	Oats. — Thousand centals (1 cental = 100 lb.).									
Exporting Countries:										
Irish Free State	0	0	0	0	0	0	0	0	0	0
Hungary	7	0	0	0	66	0	0	0	108	0
Lithuania	0	2	0	0	0	4	0	0	518	0
Poland	179	364	0	0	481	589	0	0	2,595	0
Romania	...	...	...	...	1) 126	1) 126	1) 0	1) 0	386	0
Czechoslovakia	97	22	0	0	141	77	0	0	82	13
Yugoslavia	0	18	0	0	0	71	0	0	73	0
Canada	276	472	0	0	776	972	0	0	4,074	115
United States	2	13	7	2	4	26	11	4	205	22
Argentina	386	229	—	—	809	1,292	—	—	3,086	—
Chile	...	...	...	...	1) 134	1) 243	1) 0	1) 0	670	0
Tunis	0	35	2	0	2	99	2	0	214	0
Australia	24	13	0	0	33	26	2	0	97	2
Importing Countries:										
Germany	0	0	0	22	0	0	7	117	0	463
Austria	0	0	22	66	0	0	150	154	0	613
Belgium	0	0	29	2	0	0	73	18	0	897
Denmark	0	73	84	29	0	101	86	46	439	143
Estonia	0	0	0	0	0	0	0	0	0	44
Finland	0	0	2	53	0	0	33	53	0	769
France	0	0	251	31	2	0	564	84	7	476
Gr. Brit. and N. Irel.	2	2	181	227	4	4	628	597	20	2,866
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	0	0	0	0	0	0	130	0
Norway	0	0	0	0	0	0	0	0	0	7
Netherlands	90	0	7	7	108	0	71	119	214	516
Sweden	0	18	0	57	0	18	22	68	181	280
Switzerland	0	0	335	602	0	0	917	1 171	0	4,416
Algeria	...	...	...	.	2) 172	2) 4	2) 9	2) 13	260	46
Totals	**1,063**	**1,261**	**920**	**1,098**	**2,858**	**3,652**	**2,575**	**2,444**	**13,359**	**11,688**
	Maize. — Thousand centals (1 cental = 100 lb.).									
					TWELVE MONTHS (November 1-October 31)				TWELVE MONTHS (Nov 1-Oct 31)	
					1935-36	1934-35	1935-36	1934-35	1934-35	1934-35
Exporting Countries										
Bulgaria	73	2	0	0	1,896	401	0	0	—	—
Hungary	9	0	77	692	40	130	7,304	2,996	—	—
Romania	...	...	..		1) 17,908	1) 9,892	1) 0	1) 0	—	—
Yugoslavia	71	518	0	0	1,512	12,652	0	0	—	—
United States	13	4	4,548	2,626	295	251	13,733	23,034	—	—
Argentina	20,781	15,152	—	—	171,253	143,442	—	—	—	—
Java and Madura	..	...	—	—	1) 2,370	1) 1,426	—	—	—	—
Indo-China	..	...	—	—	1) 8,706	1) 7,994	—	—	—	—
Syria and Lebanon	0	0	0	0	79	2	2	7	—	—
Egypt	...	...	. .	. .	1) 2	1) 0	1) 9	1) 24	—	—
Union of South Afr.	...	...	...	...	1) 1,446	1) 8 794	1) 4	1) 0	—	—
Importing Countries										
Germany	0	0	53	132	0	0	4,176	7,738	—	—
Austria	0	0	359	613	0	0	7,024	9,431	—	—
Belgium	31	64	1,947	1,510	507	728	19,399	16,211	—	—
Denmark	0	0	836	238	0	0	4,526	5,086	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Irish Free State	0	0	611	538	0	0	4,850	6,237	—	—
Finland	0	0	64	187	0	0	2.030	988	—	—
France	0	2	2,280	1,133	2	9	15,300	14,154	—	—
Gr. Brit. and N. Irel.	112	148	8,772	7,092	1,479	2,222	79,084	64,492	—	—
Greece	...	...	...	. .	1) 0	1) 0	1) 1,488	1) 944	—	—
Italy	—	—	—	—	—	—	—	—	—	—
Norway	0	0	260	362	0	0	2,758	2,754	—	—
Netherlands	0	0	1,594	1,676	2	0	19,687	19,321	—	—
Poland	0	0	0	0	0	0	0	0	—	—
Portugal	...	...	...	...	1) 2	1) 0	1) 348	1) 509	—	—
Sweden	0	0	171	82	0	0	1,421	891	—	—
Switzerland	0	0	174	344	0	0	1,742	1,892	—	—
Czechoslovakia	0	0	51	306	0	0	2,247	2,672	—	—
Canada	11	0	2,260	597	62	4	4,722	4.566	—	—
Japan	—	—	...	...	—	—	1) 5,809	1) 1,301	—	—
Tunis	0	2	79	0	4	7	141	55	—	—
Totals	**21,101**	**15,892**	**24,086**	**18,128**	**207,565**	**187,954**	**197,804**	**185,303**	—	—

---

1) 2) See notes page 937.

COUNTRIES	OCTOBER				TEN MONTHS (January 1-October 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
Exporting Countries:	**Rice.** — Thousand centals (1 cental = 100 lb.).									
Spain	—	—	—	—	—	—	—	—	613	0
Italy	—	—	—	—	—	—	—	—	2,815	73
United States	18	148	123	26	128	1,235	877	481	1,667	534
Brazil	...	...	—	—	2) 1,027	2) 1,179	—	—	2,090	—
India	2,560	2,361	82	637	26,548	34,489	3,210	3,960	37,181	4,786
Indo-China	...	..	...	...	1) 31,460	1) 33,151	1) 60	1) 24	38,921	35
Siam	3,073	3,413	—	—	30,442	28,559	—	—	34,350	—
Egypt	...	...	...	...	1) 1,907	1) 758	1) 2	1) 15	1,561	15
Importing Countries:										
Germany	60	110	331	377	459	467	3,309	3,501	611	4,209
Austria	0	0	75	95	0	0	505	606	0	745
Belgium	24	7	146	75	132	37	897	767	62	933
Denmark	0	0	4	11	0	0	68	77	0	90
Estonia	—	—	4	4	—	—	20	15	—	18
Irish Free State	0	0	7	2	0	0	71	49	0	55
France	24	11	2,143	500	278	476	14,815	7,564	507	9,464
Gr. Brit. and N Irel.	20	7	137	108	161	130	2,011	2,200	141	2,427
Greece	...	...	...	...	1) 0	1) 0	1) 459	1) 432	0	593
Hungary	0	0	37	9	0	0	311	223	0	414
Latvia	0	0	0	0	0	0	11	9	0	13
Lithuania	0	0	2	2	0	0	9	7	0	9
Norway	0	0	4	9	0	0	88	93	0	110
Netherlands	231	209	364	320	1,856	1,733	3,497	2,601	2,044	3,287
Poland	20	31	251	2	181	161	1,054	1,043	196	1,045
Portugal	—	—	...	...	—	—	1) 432	1) 406	—	414
Sweden	—	—	18	18	—	—	209	201	—	227
Switzerland	0	0	66	57	0	0	359	397	0	511
Czechoslovakia	0	0	73	115	0	0	911	1,093	0	1,473
Yugoslavia	0	0	37	35	0	0	320	317	0	441
Canada	4	0	33	15	24	2	734	602	4	644
Chile	—	—	...	...	—	—	1) 291	1) 187	—	306
Ceylon	0	0	829	1,142	2	2	10,005	10,507	2	12,511
China	...	..	...	...	1) 448	1) 62	1) 6,702	1) 27,659	146	28,581
Java and Madura	..	...	...	...	1) 159	1) 77	1) 159	1) 2,491	154	2,604
Japan	...	...	...	...	1) 101	1) 646	1) 595	1) 238	708	866
Syria and Lebanon	0	0	31	20	0	0	282	298	0	414
Algeria	...	...	...	...	2) 2	2) 0	2) 190	2) 108	2	152
Tunis	0	0	13	2	0	0	57	24	0	26
Union of South Afr.	...	...	...	...	1) 0	1) 0	1) 968	1) 816	0	1,204
Australia	42	20	22	4	227	205	66	35	247	51
New Zealand	...	...	..	...	1) 0	1) 0	1) 55	1) 60	0	73
Totals	**6,076**	**6,317**	**4,832**	**3,585**	**95,542**	**103,369**	**53,609**	**69,106**	**124,022**	**79,353**
Exporting Countries:	**Linseed.** — Thousand centals (1 cental = 100 lb.).									
Lithuania	73	13	0	0	320	108	0	0	280	0
Argentina	2,959	2,595	—	—	26,008	33,433	—	—	39,159	—
India	650	452	0	0	5,869	1,953	0	0	2,919	0
Tunis	0	0	0	0	0	2	0	0	2	0
Importing Countries:										
Germany	0	0	516	564	0	0	4,136	4,936	0	5,452
Belgium	7	9	130	302	106	95	1,898	2,141	112	2,725
Denmark	—	—	64	31	—	—	406	434	—	564
Spain	—	—	—	—	—	—	—	—	—	558
Estonia	0	0	0	0	2	4	20	4	4	20
Finland	0	0	4	9	0	0	115	68	0	84
France	0	0	467	553	2	2	5,496	4,852	4	5,580
Gr Brit. and N. Irel.	0	0	489	622	0	2	5,260	4,528	2	5,774
Greece	...	...	...	...	1) 0	1) 0	1) 42	1) 90	0	119
Hungary	0	2	0	0	0	7	15	0	9	0
Italy	—	—	—	—	—	—	—	—	0	1,590
Latvia	0	0	2	2	26	49	37	64	57	84
Norway	0	0	15	42	0	0	412	470	0	536
Netherlands	7	2	273	822	86	68	5,763	7,804	77	8,871
Poland	0	7	0	0	77	9	0	0	26	0
Sweden	—	—	57	51	—	—	683	747	—	915
Czechoslovakia	0	0	42	44	0	0	399	467	0	578
Yugoslavia	0	0	4	11	0	0	64	157	0	185
Canada	46	0	31	24	75	7	575	280	11	284
United States	—	—	979	520	—	—	6,255	8,186	—	9,833
Japan	...	...	...	...	1) 0	1) 2	1) 179	1) 379	2	478
Australia	0	0	115	24	0	0	489	717	0	750
Totals	**3,742**	**3,080**	**3,188**	**3,621**	**32,571**	**35,741**	**32,244**	**36,324**	**42,664**	**44,980**

1) 2) See notes page 937.

COUNTRIES	October				Ten months (January 1-October 31)				Twelve months (January 1-Dec. 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935	1935
	Butter. — (Thousand lb.).									
Exporting Countries:										
Austria	1,149	593	0	2	6,462	5,000	11	13	5,688	18
Denmark	28,570	24,460	15	0	272,741	256,116	192	20	305,024	0
Estonia	1,433	2,493	0	0	19,954	20,869	0	0	23,894	0
Irish Free State	6,473	3,792	0	0	53,868	56,397	9	40	59,470	40
Finland	2,617	1,817	0	0	25,730	19,255	0	0	22,582	0
Hungary	1,429	847	0	0	8,356	4,147	0	0	5,516	0
Latvia	4,348	3,234	0	0	33,268	33,235	0	0	37,073	0
Lithuania	4,021	2,657	0	0	28,451	23,636	0	0	26,795	0
Norway	0	0	0	0	366	247	0	0	417	4
Netherlands	10,933	8,089	15	35	115,882	89,001	55	287	103,146	430
Poland	3,252	1,091	0	0	21,971	8,971	0	2	12,533	2
Sweden	4,226	2,996	0	0	35,239	40,521	412	2	44,664	1,340
U. S. S. R	7,895	2,954	35	0	38,643	60,012	15,549	428	64,801	529
Argentina	553	95	—	—	15,406	9,881	—	—	14,943	—
India	9	22	75	68	176	192	778	624	240	789
Syria and Lebanon	110	2	7	9	556	386	137	265	463	309
Australia	16,107	22,871	0	0	145,272	196,430	4	2	256,769	2
New Zealand	...	...	—	—	1) 225,256	1) 213,503	—	—	312,445	—
Importing Countries:										
Germany	0	0	24,079	14,967	0	13	138,484	128,664	13	156,529
Belgium	4	4	42	346	57	53	7,381	8,812	71	13,296
Spain	—	—	—	—	—	—	—	—	26	79
France	1,241	1,310	141	121	11,032	9,875	4,057	1,149	11,605	1,504
Gr. Brit. and N. Irel.	983	644	87,074	80,066	8,051	13,569	921,244	919,229	15,768	1,076,827
Greece	—	—	...	..	—	—	1) 600	1) 705	—	1,014
Italy	—	—	—	—	—	—	—	—	437	930
Switzerland	0	0	77	9	4	2	1,594	137	2	302
Czechoslovakia	44	0	11	218	49	0	496	2,310	4	2,928
Canada	60	6,497	0	7	5,007	6,997	110	146	7,696	148
United States	60	267	648	108	721	822	7,357	22,042	957	22,675
Ceylon	—	—	57	82	—	—	628	692	—	855
Java and Madura	—	—	.	. .	—	—	1) 6,980	1) 7,249	—	10,247
Japan	...	..	...	..	1) 496	1) 243	1) 9	1) 15	355	22
Egypt	...	...	...	...	1) 37	1) 119	1) 959	1) 745	128	994
Tunis	0	2	243	227	4	18	1,642	1,673	24	2,017
Totals	**95,517**	**86,737**	**112,519**	**96,265**	**1,073,055**	**1,069,510**	**1,108,688**	**1,095,251**	**1,333,549**	**1,293,830**
	Cheese. — (Thousand lb.).									
Exporting Countries:										
Bulgaria	694	478	0	0	3,624	3,217	0	0	4,224	0
Denmark	1,936	1,140	2	0	17,957	11,131	18	22	14,689	29
Finland	1,087	1,153	2	2	9,039	7,787	15	15	9,365	22
Italy	—	—	—	—	—	—	—	—	61,223	10,657
Lithuania	95	15	0	0	739	474	2	2	496	2
Norway	298	333	29	24	2,793	2,500	190	196	3,146	251
Netherlands	11,413	11,235	73	112	103,223	113,613	712	657	134,597	838
Poland	284	29	22	22	397	575	183	245	620	287
Switzerland	2,597	3,397	280	377	35,140	33,804	2,540	2,820	40,248	3,851
Czechoslovakia	57	317	185	174	1,111	1,468	2,253	2,198	1,814	2,663
Yugoslavia	1,195	816	9	7	3,845	3,688	33	49	4,381	57
Canada	15,803	13,049	150	159	60,581	44,994	869	1,003	55,720	1,274
Australia	1,634	838	15	7	7,846	11,462	75	60	15,335	77
New Zealand	..	...	...	...	1) 133,658	1) 143,530	2) 0	2) 0	193,489	0
Importing Countries:										
Germany	9	35	4,702	5,384	214	595	51,577	50,444	728	61,661
Austria	752	688	121	106	6,700	6,135	1,618	1,537	7,366	1,724
Belgium	35	33	4,795	4,076	300	278	42,591	43,572	355	50,726
Spain	—	—	—	—	—	—	—	—	108	2,524
Irish Free State	326	245	4	4	1,486	686	77	57	1,027	62
France	2,019	2,125	2,745	2,815	18,953	19,679	26,405	27,578	24,610	34,648
Gr. Brit. and N. Irel.	573	602	28,120	30,658	5,027	4,780	242,062	259,906	5,818	282,931
Greece	...	...	...	...	1) 373	1) 126	1) 291	1) 996	181	1,120
Hungary	37	9	0	0	564	185	0	2	278	4
Portugal	—	—	...	...	—	—	1) 212	1) 291	—	417
Sweden	—	—	291	159	—	—	2,628	1,113	—	2,502
United States	93	79	5,675	6,014	952	955	47,739	40,032	1,153	48,934
India	0	0	168	157	2	4	926	968	4	1,276
Java and Madura	—	—	...	...	—	—	1) 1,272	1) 1,429	—	1,920
Syria and Lebanon	49	0	44	82	326	430	752	791	503	979
Algeria	...	...	...	...	2) 55	2) 86	2) 7,150	2) 7,544	119	13,349
Egypt	...	...	...	...	1) 24	1) 64	1) 5,315	1) 5,520	86	7,330
Tunis	4	2	304	298	99	37	2,321	2,244	46	2,948
Totals	**40,990**	**36,618**	**47,736**	**50,637**	**415,028**	**412,283**	**439,826**	**451.291**	**581,729**	**535,063**

---

1) 2) See notes page 937.

Cotton. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	October				Three months (August 1-October 31)				Twelve months (August 1-July 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
Exporting Countries:										
United States	4,502	3,754	51	40	8,444	7,599	159	112	31,337	791
Argentina	84	57	—	—	381	328	—	—	1,030	—
Brazil	...	...	—	—	2) 668	2) 265	—	—	3,549	—
India	549	712	68	71	1,867	1,713	183	258	14,961	1,285
Egypt	...	...	—	—	1) 668	1) 703	—	—	8,095	—
Importing Countries:										
Germany	0	71	467	719	2	256	1,292	2,066	573	7,264
Austria	0	0	82	77	0	0	181	190	0	886
Belgium	62	53	190	152	163	143	487	459	653	2,374
Denmark	—	—	18	18	—	—	44	42	—	176
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	11	11	0	0	31	29	0	119
Finland	0	0	26	29	0	0	62	64	0	280
France	29	40	642	410	93	82	1,146	1,107	335	7,106
Gr. Brit and N. Irel.	46	55	1,437	1,376	176	179	3,558	2,621	747	15,168
Greece	...	...	...	...	1) 0	1) 11	1) 9	1) 29	11	110
Hungary	—	—	49	37	—	—	132	108	0	560
Italy	—	—	—	—	—	—	—	—	—	—
Latvia	0	0	9	9	0	0	22	26	0	97
Norway	0	0	4	7	0	0	9	13	0	71
Netherlands	0	0	106	84	4	2	256	225	4	1,001
Poland	0	0	139	141	0	0	410	390	4	1,614
Portugal	—	—	...	...	—	—	1) 49	75	—	560
Sweden	—	—	62	49	—	—	128	119	—	672
Switzerland	0	0	53	49	0	0	104	90	0	549
Czechoslovakia	4	4	185	172	18	13	476	443	49	2,130
Yugoslavia	0	0	35	40	0	0	75	88	0	375
Canada	—	—	165	108	—	—	331	238	—	1,358
China	...	...	...	...	1) 49	1) 60	1) 97	1) 108	892	915
Japan	...	...	...	...	1) 112	1) 84	1) 2,584	1) 1,548	582	18,089
Algeria	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	4
Totals	**5,276**	**4,746**	**3,799**	**3,599**	**12,645**	**11,438**	**11,825**	**10,448**	**62,822**	**63,554**

Wool. — (Thousand lb.).

COUNTRIES	October				Two months (September 1-October 31)				Twelve months (Sept. 1-August 31)	
	Exports		Imports		Exports		Imports		Exports	Imports
	1936	1935	1936	1935	1936	1935	1936	1935	1935-36	1935-36
Exporting Countries:										
Irish Free State	2,044	1,590	79	57	3,794	3,095	137	106	15,977	562
Hungary	141	26	53	73	251	73	128	271	952	1,900
Argentina a)	5,304	4,240	—	—	12,974	9,828	—	—	246,154	—
b)	2,297	3,975	—	—	5,088	7,050	—	—	32,911	—
Chile	...	...	...	...	1) 278	1) 203	1) 95	1) 20	19,004	1,391
India	5,408	7,344	582	203	13,096	14,767	1,034	595	56,353	6,832
Syria and Lebanon	646	0	40	0	1,631	1,021	79	53	4,930	223
Algeria	...	...	...	...	...	...	..	...	14,793	2,176
Egypt	...	...	...	...	1) 769	1) 359	1) 0	1) 7	4,096	64
Un. of S. Africa a)	24,381	17,871	...	...	28,303	21,098	1) 55	1) 97	213,150	97
b)	527	359	...	...	974	628	1) 0	1) 88	6,512	2,174
Australia a)	91,829	83,364	278	567	144,035	129,925	304	1,482	732,907	9,222
b)	6,294	5,878	26	37	9,925	10,606	29	79	64,627	157
New Zealand a)	...	...	...	...	1) 3,898	1) 5,165	...	...	262,902	90
b)	...	...	...	...	1) 3,964	1) 3,977	...	...	52,812	22
Importing Countries:										
Germany a)	2	106	7,106	6,962	9	190	14,537	14,797	395	182,850
b)	18	132	4,597	2,524	24	198	8,397	5,042	1,146	35,991
Austria	2	13	763	1,142	20	37	1,349	2,112	251	23,671
Belgium a)	5,459	3,492	11,312	15,252	8,356	5,580	18,678	21,976	68,875	220,472
b)	2,895	2,568	514	284	4,930	4,539	1,625	750	26,553	5,348
Denmark	71	20	454	575	161	53	1,323	1,093	392	4,923
Spain	—	—	—	—	—	—	—	—	—	—
Finland	35	11	730	564	35	35	1,248	1,047	214	5,692
France	5,370	3,953	9,592	13,272	12,272	7,192	18,803	23,903	56,968	362,174
Gr. Brit. and N. Irel.	24,961	28,742	51,176	40,279	38,217	41,723	85,458	68,081	321,201	879,321
Greece	...	...	...	...	1) 240	1) 130	1) 289	1) 611	1,676	11,050
Italy a)	—	—	—	—	—	—	—	—	—	—
b)	—	—	—	—	—	—	—	—	—	—
Norway	163	86	240	302	276	176	492	522	1,111	2,820
Netherlands a)	353	172	439	273	919	439	1,008	366	3,499	6,975
b)	82	130	613	710	190	196	919	1,049	1,235	5,110
Poland	2	18	4,561	3,001	18	18	10,024	5,176	165	44,401
Sweden	—	—	2,242	1,673	—	—	4,385	3,084	—	20,324
Switzerland	4	15	1,016	842	33	18	2,169	1,464	256	15,973
Czechoslovakia	13	40	2,800	2,582	35	97	5,159	4,795	1,074	43,134
Yugoslavia	22	46	981	818	216	119	1,579	1,367	4,958	9,509
Canada	796	1,343	1,151	1,325	1,660	2,584	2,291	2,134	8,543	22,520
United States	4	0	23,550	23,497	4	13	43,186	45,451	24	241,894
Japan	...	...	...	...	1) 46	1) 49	1) 3,766	1) 2,864	833	261,981
Tunis	379	104	46	42	494	165	79	84	1,107	518
Totals	**179,502**	**165,638**	**124,941**	**116,856**	**297,085**	**271,346**	**228,625**	**210,566**	**2,228,556**	**2,431,561**

a) = Wool, greasy: b) = Wool, scoured. — 1) 2) See notes page 93

Coffee. — (Thousand lb.).

COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1-June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries:					
Brazil	153,019	210,946	586,707	733,178	2,046,622
Colombia	39,509	54,073	170,235	183,449	505,442
India	1,257	1,407	4,471	2,282	26,147
Java and Madura	...	...	1) 12,844	1) 19,350	54,351
Importing Countries:					
Germany	0	0	0	0	0
Belgium	152	40	461	203	728
France	4	2	18	2	4
Gr. Britain and N. Ireland	1,387	2,194	5,379	10,005	23,473
Netherlands	68	1,085	128	2,846	6,839
Portugal	...	...	1) 697	1) 670	3,430
Switzerland	2	0	2	2	2
Canada	13	20	68	64	214
United-States	637	677	2,377	2,233	8,792
Ceylon	0	0	0	0	2
Syria and Lebanon	0	0	0	0	4
Australia	11	2	26	11	24
Totals	**196,059**	**270,446**	**783,413**	**954,295**	**2,676,074**
			IMPORTS.		
Importing Countries:					
Germany	31,453	29,939	117,844	112,277	329,173
Austria	1,074	1,071	4,140	3,975	11,462
Belgium	11,830	12,613	40,005	37,373	108,970
Bulgaria	60	112	342	381	1,100
Denmark	5,483	5,721	22,203	17,675	56,467
Spain	—	—	—	—	52,913
Estonia	9	26	77	64	192
Irish Free State	31	51	157	154	606
Finland	4,440	4,085	17,015	14,277	42,428
France	32,005	35,686	129,022	140,697	425,879
Gr. Britain and N. Ireland	1,757	816	3,757	3,208	52,270
Greece	...	...	1) 3,269	1) 3,245	13,314
Hungary	589	335	1,583	1,138	4,398
Italy	—	—	—	—	—
Latvia	22	9	97	55	251
Lithuania	26	44	117	119	412
Norway	2,652	3,001	10,027	13,896	41,515
Netherlands	1,587	11,237	7,447	32,221	91,534
Poland	904	657	3,834	3,007	11,718
Portugal	...	...	1) 3,719	1) 3,501	13,336
Sweden	9,253	11,671	34,622	37,728	105,842
Switzerland	1,124	3,371	8,860	16,136	38,281
Czechoslovakia	2,388	1,956	8,025	7,844	23,832
Yugoslavia	1,468	1,488	4,244	4,976	15,210
Canada	2,557	2,917	11,169	10,082	39,196
United States	121,486	163,259	487,706	584,123	1,853,267
Chile	...	...	1) 1,349	1) 2,513	7,527
Ceylon	190	516	1,294	1,422	2,738
Japan	...	...	1) 1,859	1) 1,724	10,825
Syria and Lebanon	231	174	787	683	2,390
Algeria	...	...	2) 3,261	2) 5,260	32,452
Egypt	...	...	1) 3,816	1) 5,046	17,324
Tunis	192	320	919	922	3,342
Union of S. Africa	...	...	1) 8,907	1) 6,471	31,654
Australia	150	337	1,219	1,625	4,619
New Zealand	...	...	2) 106	2) 44	437
Exporting Countries:					
India	0	0	0	0	0
Totals	**232,961**	**291,412**	**942,798**	**1,073,862**	**3,446,874**

Tea. — (Thousand lb.).

COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1) June 30)
	1936	1935	1936	1935	1935-36
			EXPORTS.		
Exporting Countries:					
Ceylon	14,006	17,679	62,814	62,323	223,530
China	...	...	1) 28,266	1) 20,192	76,201
India	45,843	43,204	157,265	150,592	316,384
Java and Madura	...	...	1) 26,228	1) 24,143	118,230
Japan	...	...	1) 15,794	1) 15,298	32,551
Importing Countries:					
Belgium	0	0	2	0	2
Irish Free State	2	4	7	13	22
France	2	0	2	4	18
Gr.Brit and N. Irel.	6,019	7,326	23,618	24,086	72,067
Netherlands	9	9	33	40	112
Syria and Lebanon	0	0	0	0	11
Algeria	...	...	2) 4	2) 4	9
Union of S. Africa.	...	...	1) 183	1) 22	320
Australia	40	110	201	258	635
New Zealand.	...	...	2) 22	2) 18	126
Totals	**65,921**	**68,332**	**314,439**	**296,993**	**840,218**
			IMPORTS.		
Importing Countries:					
Germany	928	924	3,192	3,424	10,152
Austria	139	99	302	265	789
Belgium	51	66	227	176	562
Denmark	95	101	408	375	1,120
Spain	—	—	—	—	249
Estonia	13	9	35	31	95
Irish Free State	2,361	3,142	7,732	8,091	21,771
Finland	24	20	75	82	276
France	293	289	996	796	2,853
Gr. Britain and N. Ireland	51,123	56,401	178,042	176,496	486,313
Greece.	...	...	1) 245	1) 115	445
Hungary.	86	51	176	108	430
Italy	—	—	—	—	—
Latvia.	9	7	24	20	71
Lithuania	9	13	22	31	93
Norway	31	44	99	137	362
Netherlands	2,632	5,970	9,456	13,157	28,980
Poland	320	320	948	1,133	3,461
Portugal	...	...	1) 75	1) 93	443
Sweden	86	146	322	373	1,016
Switzerland	148	174	536	694	1,819
Czechoslovakia	216	137	498	450	1,166
Yugoslavia	71	60	126	150	381
Canada	3,913	6,327	11,019	15,298	44,214
United States	9,727	9,326	31,072	30,135	83,917
Chile	...	...	1) 1,457	1) 1,323	4,215
Syria and Lebanon	49	29	139	75	298
Algeria	...	...	2) 1,025	2) 467	2,518
Egypt	...	...	1) 3,893	1) 3,364	13,980
Tunis	280	278	1,054	1,069	6,321
Union of S. Africa	...	...	1) 4,235	1) 3,093	13,702
Australia	4,090	4,519	16,711	15,640	41,557
New Zealand.	...	...	2) 2,216	2) 1,779	10,666
Exporting Countries:					
China	...	...	1) 152	1) 126	688
India	767	829	2,053	2,725	5,249
Java and Madura.	...	...	1) 192	1) 333	955
Totals	**77,461**	**89,281**	**278,754**	**281,624**	**791,127**

1) 2) See notes page 937.

Cacao. — (Thousand lb.).

COUNTRIES	OCTOBER 1936	OCTOBER 1935	TWELVE MONTHS (Oct. 1-Sept. 30) 1935-36	TWELVE MONTHS (Oct. 1-Sept. 30) 1934-35	TWELVE MONTHS (Oct. 1-Sept. 30) 1934-35
			EXPORTS.		
Exporting Countries:					
Grenada	...	...	8,228	8,836	—
Dominican Republ.	...	...	40,239	62,620	—
Brazil	...	...	2) 236,779	2) 190,672	—
Ecuador	...	...	45,096	41,557	—
Trinidad	...	...	27,805	45,748	—
Venezuela	...	...	29,198	28,464	—
Ceylon	1,054	825	6,102	7,893	—
Java and Madura	...	...	3,995	3,283	—
Cameroon (Fr. m. t.)	...	...	52,927	48,956	—
Ivory Coast	...	...	108,816	97,575	—
Gold Coast	54,955	35,977	639,440	541,032	—
Nigeria and Cameroon (Brit. m. t.)	...	...	201,931	184,186	—
Saint Thomas and Prince Is.	...	...	31,780	22,073	—
Togoland (Fr m. t.)	...	...	21,182	19,663	—
Importing Countries					
Germany	0	7	7	88	—
Belgium	60	0	154	176	—
France	0	0	9	2	—
Gr. Brit. and N Irel.	2,363	591	8,494	15,499	—
Netherlands	1,138	511	5,181	4,643	—
Australia	0	9	104	408	—
Totals	**59,570**	**37,920**	**1,467,467**	**1,323,374**	—
			IMPORTS.		
Importing Countries.					
Germany	17,996	15,842	172,395	165,896	—
Austria	1,761	882	12,125	12,487	—
Belgium	1,854	2,081	25,089	20,651	—
Bulgaria	117	117	1,559	805	—
Denmark	1,146	1,030	9,914	8,547	—
Spain	—	—	—	—	—
Estonia	79	40	844	756	—
Irish Free State	79	101	3,349	2,820	—
Finland	29	26	304	256	—
France	6,074	9,983	126,568	90,974	—
Gr Brit. and N. Irel.	1,944	4,045	276,108	196,128	—
Greece	...	...	3,497	2,840	—
Hungary	1,060	1,091	9,961	8,638	—
Italy	—	—	—	—	—
Latvia	77	134	1,204	1,235	—
Lithuania	126	101	1,047	758	—
Norway	849	481	5,514	6,731	—
Netherlands	8,900	10,734	146,555	133,982	—
Poland	1,248	1,038	14,035	15,845	—
Portugal	...	...	1,091	1,124	—
Sweden	933	961	12,178	12,103	—
Switzerland	635	758	17,183	16,052	—
Czechoslovakia	2,822	2,928	27,055	23,199	—
Yugoslavia	247	128	1,845	1,867	—
Canada	3,340	1,521	27,847	25,790	—
United States	51,549	43,429	580,159	566,112	—
Japan	...	...	3,468	3,309	—
Australia	106	304	12,403	14,500	—
New Zealand	...	...	2) 3,223	2) 3,303	—
Totals	**102,971**	**97,755**	**1,496,520**	**1,336,708**	—

Total Wheat and Flour *)

(Thousand centals).

COUNTRIES	OCTOBER 1936	OCTOBER 1935	THREE MONTHS (Aug. 1-Oct. 31) 1936	THREE MONTHS (Aug. 1-Oct. 31) 1935	TWELVE MONTHS (August 1-July 31) 1935-36
			a) NET EXPORTS.		
Exporting Countries:					
Germany	3)	3)	3)	3)	130
Bulgaria	692	161	1,715	346	683
Estonia	0	0	0	44	0
Hungary	1,539	1,237	5,659	2,903	9,828
Latvia	0	216	0	699	926
Lithuania	0	117	0	130	1,274
Poland	392	489	1,523	888	4,048
Portugal	...	...	3)	3)	2,161
Romania	...	...	1) 7,059	1) 916	3,521
Sweden	7	146	437	575	1,133
Czechoslovakia	3)	3)	20	3)	3)
Yugoslavia	1,261	11	4,440	26	467
U. S. S. R.	218	3,792	573	1,412	17,223
Canada	17,304	18,651	44,401	44,027	152,053
Argentina	3,730	4,746	8,572	17,571	41,674
Chile	...	...	1) 0	1) 82	1,347
China	...	...	1) 351	3)	3)
India	1,237	141	2,366	298	664
Japan	...	...	3)	1) 269	3)
Syria and Lebanon	187	13	344	3)	234
Algeria	...	...	2) 522	2) 412	5,875
French Morocco	3)	176	3)	957	2,926
Tunis	11	417	3)	1,554	2,743
Australia	2,191	5,432	9,548	12,943	60,133
Totals	**28,769**	**35,745**	**87,530**	**95,053**	**309,043**
			b) NET IMPORTS.		
Importing Countries:					
Germany	71	57	170	126	4)
Austria	536	373	1,318	844	4,189
Belgium	1,984	3,036	7,247	7,366	23,391
Denmark	481	454	1,120	1,202	5,379
Spain	—	—	—	—	—
Irish Free State	983	445	1,938	1,706	8,971
Finland	123	225	556	644	2,535
France	306	1,296	648	2,277	4,786
Gr Brit. and N. Irel.	10,399	11,936	28,374	29,048	122,835
Greece	...	...	1) 1,850	1) 1,669	8,852
Italy	—	—	—	—	—
Norway	441	394	902	974	4,555
Netherlands	875	1,391	2,729	3,876	12,961
Portugal	...	...	1) 22	1) 68	4)
Switzerland	5) 968	5) 941	5) 2,628	5) 2,864	5) 10,000
Czechoslovakia	2	88	4)	1,213	1,314
Total Europe	*17,169*	*20,626*	*49,502*	*53,877*	*209,768*
United States	1,823	3,124	7,447	6,455	22,767
Ceylon	73	55	179	176	549
China	...	...	4)	1) 1,369	4,667
Indo-China	...	...	1) 115	1) 79	520
Japan	...	...	1) 703	4)	3,241
Java and Madura	...	...	1) 209	1) 196	1,709
Syria and Lebanon	4)	4)	4)	4	4)
Egypt	...	...	1) 9	1) 11	104
French Morocco	223	4)	220	4)	4)
Tunis	4)	4)	26	4)	4)
Union of S. Africa	...	...	1) 2	1) 9	40
New Zealand	...	...	2) 47	2) 24	556
Totals	**19,288**	**23,805**	**58,459**	**62,200**	**243,921**

---

*) Flour reduced to grain on the basis of the coefficient: 1000 centals of flour = 1.333,333 centals of grain.
a) Excess of exports over imports. — *b)* Excess of imports over exports.
1) Data up to 30 September — 2) Data up to 31 August. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only.

OTHER TRADE STATISTICS RECEIVED BY THE INSTITUTE.

Statistics received too late for inclusion in the tables and statistics for November already available.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
BRAZIL		Sept.	Sept.	Sept.	Sept.
Rice	1000 centals	55	172	—	—
Cotton	» »	384	243	—	—
Cacao	1000 lb.	434	342	—	—
PORTUGAL		Oct.	Oct.	Oct.	Oct.
Wheat	1000 centals	0	0	0	33
Wheat flour	» »	—	—	7	15
Maize	»	0	0	40	40
Rice	» »	—	—	2	4
Cheese	1000 lb.	—	—	24	40
Cotton	1000 centals	—	—	20	49
Coffee	1000 lb.	229	249	820	1,089
Tea	» »	—	—	44	42
Cacao	» »	—	—	99	88
CHINA					
Wheat	1000 centals	97	13	0	93
Wheat flour	» »	40	0	51	95
Rice	» »	31	2	71	342
Cotton	» »	88	46	40	24
Tea	1000 lb.	6,016	10,192	66	35
INDO-CHINA					
Wheat flour	1000 centals	0	0	35	55
Maize	» »	1,836	2,105	—	—
Rice	» »	2,610	2,718	...	...
UNION OF SOUTH AFRICA					
Wheat	1000 centals	0	0	2	2
Wheat flour	» »	0	0	2	0
Maize	» »	0	1,453	0	0
Rice	» »	0	0	95	104
Wool a)	1000 lb.	24,381	17,871	24	24
Wool b)	» »	527	359	141	247
Coffee	» »	—	—	2,648	3,069
Tea	» »	33	24	1,257	743
NEW ZEALAND					
Butter	1000 lb.	15,351	27,141	—	—
Cheese	» »	11,310	10,737	...	...
Wool a)	» »	2,967	1,962	...	...
Wool b)	» »	2,211	3,419	...	...
CACAO					
Trinidad	1000 lb.	348	410	—	—
Ivory Coast	» »	3,247	3,234	—	—
Nigeria and Cameroon (Br. m. t.)	» »	7,930	9,334	—	—
Saint Thomas and Prince Is.	» »	2,253	3,419	—	—

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1936	1935	1936	1935
GR. BRITAIN AND N. IRELAND		Nov.	Nov.	Nov.	Nov.
Wheat	1000 centals	42	44	10,450	11,058
Wheat flour	» »	229	126	668	844
Barley	» »	0	2	2,445	2,070
Oats	» »	0	0	291	549
Maize	» »	157	123	8,807	7,434
Rice	» »	15	7	240	86
Linseed	» »	0	0	472	500
Butter	1000 lb.	613	1,444	79,823	66,712
Cheese	» »	478	608	28,535	19,945
Cotton	1000 centals	29	79	1,561	1,695
Wool	1000 lb.	17,813	20,975	65,755	60,956
Coffee	» »	1,713	2,983	3,109	1,530
Tea	» »	6,506	8,038	51,064	48,101
Cacao	» »	1,235	789	8,986	17,000
NORWAY					
Wheat	1000 centals	0	0	128	265
Rye	» »	0	0	77	322
Wheat flour	» »	0	0	152	154
Barley	» »	0	0	24	42
Oats	» »	0	0	0	0
Maize	» »	0	0	134	273
Rice	» »	0	0	2	7
Linseed	» »	0	0	53	51
Butter	1000 lb.	0	22	0	0
Cheese	» »	273	417	42	22
Cotton	1000 centals	0	0	930	434
Wool	1000 lb.	132	126	251	212
Coffee	» »	—	—	3,642	5,238
Tea	» »	—	—	31	31
Cacao	» »	—	—	730	370
SWITZERLAND					
Wheat	1000 centals	0	0	955	996
Rye	» »	0	0	9	18
Barley	» »	0	0	311	507
Oats	» »	0	0	328	467
Maize	» »	0	0	309	269
Rice	» »	0	0	60	64
Butter	1000 lb.	0	0	375	9
Cheese	» »	2,584	3,234	353	448
Cotton	1000 centals	0	0	93	57
Wool	1000 lb.	24	18	1,808	899
Coffee	» »	0	0	1,424	2,815
Tea	» »	—	—	179	154
Cacao	» »	—	—	1,124	809
BRAZIL					
Coffee	1000 lb.	1,567	1,830	—	—
GOLD COAST					
Cacao	1.000 lb.	71,796	73,471	—	—
NEW ZEALAND					
Butter	1000 lb.	36,121	38,698	—	—
Cheese	» »	18,444	10,648	...	...
Wool a)	» »	4,422	3,794	...	...
Wool b)	» »	2,767	1,413	...	...

---

a) Wool, greasy. — b) Wool, scoured.

STOCKS OF CEREALS

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
WHEAT :					
Canadian in Canada	57,122	79,028	86,220	139,385	138,692
U. S. in Canada	0	0	0	0	629
U. S. in the United States	42,188	45,854	49,709	48,704	59,495
Canadian in the United States	14,372	13,369	11,406	19,707	14,141
Of other origin in the United States	0	0	0	10	18
Total	*113,682*	*138,251*	*147,335*	*207,806*	*212,975*
RYE :					
Canadian in Canada	965	1,291	1,408	2,564	2,223
U. S. in Canada	0	0	0	0	0
U. S. in the United States	3,350	3,477	3,648	5,410	7,518
Canadian in the United States	262	323	295	0	0
Of other origin in the United States	0	57	58	15	72
Total	*4,577*	*5,148*	*5,409*	*7,989*	*9,813*
BARLEY :					
Canadian in Canada	5,192	7,136	6,882	4,348	5,574
U. S. in Canada	1) 13	0	0	0	0
U. S. in the United States	9,860	9,586	8,511	8,758	9,199
Canadian in the United States	1,586	1,089	583	0	426
Of other origin the United States	0	0	0	0	0
Total	*16,651*	*17,811*	*15,976*	*13,106*	*15,199*
OATS :					
Canadian in Canada	5,319	5,927	5,393	4,148	5,367
U. S. in Canada	40	0	34	0	43
U. S. in the United States	13,623	15,564	16,311	14,502	7,542
Canadian in the United States	2	2	2	77	7
Of other origin in the United States	0	0	0	0	171
Total	*18,984*	*21,493*	*21,740*	*18,727*	*13,130*
MAIZE ;					
U. S. in Canada	3	6	6	1	3,386
Of other origin in Canada	3,119	280	280	1,434	948
U. S. in the United States	4,584	2,395	2,422	2,501	28,093
Of other in the United States	180	211	137	77	0
Total	*7,886*	*2,892*	*2,845*	*4,013*	*32,427*

1) Danish barley in Canada.

Quantities of cereals on Ocean passage with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
Wheat (and flour in terms of grain)	23,280	20,371	17,362	16,061	20,462
Rye	485	634	283	139	288
Barley	2,800	3,004	2,848	2,172	1,448
Oats	1,152	774	333	541	1,501
Maize	23,251	23,981	19,445	17,611	12,254

AUTHORITY: *Broomhall's Corn Trade News.*

Stocks of cereals and potatoes belonging to farmers in Germany.

Products	% stocks: total production				Stocks in 1,000 centals			
	31 Oct. 1936	30 Sept. 1936	31 Oct. 1935	31 Oct. 1934	31 Oct. 1936	30 Sept. 1936	31 Oct. 1935	31 Oct. 1934
Winter wheat	64	74	64	59	60,500	70,000	60,400	51,300
Spring wheat	78	85	80	73	5,800	6,300	6.900	9,400
Rye	66	76	68	64	111,900	128,800	112,100	106,100
Winter barley	45	60	47	40	11,300	15,000	10,400	6,100
Spring barley	72	81	70	71	37,000	41,600	36,400	39,300
Oats	83	91	81	82	104,600	114,700	95,900	98,600
Late potatoes	78	—	—	76	768,600	—	—	744,400

AUTHORITY: *Marktberichtstelle beim Reichsnährstand* (The absolute figures are calculated by the I. I. A)

Stocks of cereals in commercial elevators and mills in Germany 1).

Products	Last day of month				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
WHEAT:					
Grain	12,017	14,678	16,753	29,335	36,083
Flour for bread	2,024	1,830	1,775	3,197	3,062
TOTAL 2)	*14,828*	*17,220*	*19,218*	*33,775*	*40,336*
RYE:					
Grain	12,430	13,812	15,258	26,222	23,270
Flour for bread	1,257	1,144	1,184	1,700	2,233
TOTAL 2)	*14,277*	*15,494*	*17,000*	*28,722*	*26,555*
BARLEY	2,407	2.641	3,547	3,743	5,203
OATS	2,676	2,908	3,298	4,070	1,660

1) Excluding the quantities in transit and the stocks in the hands of bakers and manufacturers (fodder, malt, coffee substitutes, various foodstuffs and breweries). — 2) Including flour in terms of grain on the basis of the coefficient: 1,000 centals of wheat-flour = 1,388.89 centals of wheat, 1,000 centals of rye-flour = 1,470.59 centals of rye

Grain and flour stocks at the ports of Great Britain and Ireland 1).

Products	First day of month				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
WHEAT:					
Grain	3,768	3,624	2,856	4,608	8,112
Flour as grain	672	720	816	672	744
TOTAL	*4,440*	*4,344*	*3,672*	*5.280*	*8,856*
BARLEY	1,380	1,440	1,200	1,760	1,200
OATS	208	128	160	256	208
MAIZE	3,744	3,264	2,712	3,168	4,560

1) Imported cereals

AUTHORITY: *Broomhall's Corn Trade News.*

Commercial stocks of cereals in Antwerp, Rotterdam and Amsterdam 1).

Products and location	Saturday nearest 1st of month 2)				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
Wheat:					
Antwerp	1,897	1,243	951	1,100	2,299
Rotterdam	628	583	862	584	1,464
Amsterdam	11	13	17	12	27
Rye.					
Antwerp	58	54	82	27	144
Rotterdam	33	19	20	24	203
Amsterdam	0	0	0	0	3
Barley:					
Antwerp	462	452	230	362	244
Rotterdam	13	18	0	353	220
Amsterdam	4	6	0	3	4
Oats:					
Antwerp	11	15	22	14	85
Rotterdam	0	0	0	0	94
Amsterdam	28	25	27	21	25
Maize:					
Antwerp	40	15	0	48	89
Rotterdam	44	4	7	154	375
Amsterdam	5	2	2	39	74

1) Imported cereals. — 2) For Antwerp the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

STOCKS OF COTTON

Stocks of cotton on hand in the United States.

Location	Last day of month				
	November 1936	October 1936	September 1936	November 1935	November 1934
	1,000 centals				
In consuming establishments	8,751	6,849	4,142	6,572	6,293
In public storage and at compresses	41,119	39,215	33,244	42,155	47,668
TOTAL	*49,870*	*46,064*	*37,386*	*48,727*	*53,961*

Stocks of cotton at Bombay and at Alexandria.

Ports	Thursday nearest 1st of month				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
Bombay 1)	2,220	2,428	2,776	1,504	1,977
Alexandria 2)	2,693	2,177	1,295	1,977	2,029

1) Stocks held by exporters, dealers and mills. — 2) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Minet-el-Bassal.*

Stocks of cotton in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month				
	December 1936	November 1936	October 1936	December 1935	December 1934
	1,000 centals				
Great Britain:					
American	1,406	1,251	1,121	1,083	1 224
Argentine, Brazilian, etc.	1,087	918	971	114	1,028
Peruvian, etc.	276	292	283	312	566
East Indian	245	304	308	89	237
Egyptian, Sudanese	887	715	787	784	1,247
W. Indian, W. and E. African, etc.	146	161	148	58	280
TOTAL	*4,047*	*3,641*	*3,618*	*2,440*	*4,582*
Bremen:					
American	637	429	363	444	1,346
Other	304	334	239	262	277
TOTAL	*941*	*763*	*602*	*706*	*1,623*
Le Havre:					
American	1,022	702	393	329	634
French colonies	53	28	27	17	21
Other	130	145	166	62	106
TOTAL	*1,205*	*875*	*586*	*408*	*761*
Total Continent 1):					
American	1,774	1,261	897	1,133	2,425
Argentine, Brazilian, etc.	264	387	331	219	147
East Indian	110	161	192	84	192
Egyptian	76	94	93	185	173
W. Indian, W. and E. African, etc.	19	154	139	154	247
TOTAL	*2,243*	*2,057*	*1,652*	*1,775*	*3,184*

1) Includes Bremen, Le Havre and other Continental ports

AUTHORITIES: *Liverpool Cotton Assn* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*

Price of Italian Gorgonzola cheese.

Quotations for Italian Gorgonzola cheese hitherto referred to as green, mature, choice merchandise, ex sellers' stores, consumption tax paid by buyer, price between wholesaler and retailer: these conditions have been modified as from second week in December 1936, so that subsequent quotations refer to New Second Selected cheese from the Province of Novara, packing not included, free on rail producers stations.

WEEKLY PRICES BY PRODUCTS

(All quotations are spot, unless otherwise stated. The monthly averages are based on the weekly quotations, and the annual on the monthly).

Description	11 Dec. 1936	4 Dec. 1936	27 Nov. 1936	20 Nov. 1936	Average				
					Nov. 1936	Dec. 1935	Dec. 1934	Commercial Season 1)	
								1935-36	1934-35
Wheat.									
Budapest (*a*): Tisza wheat, 78 kg. p. hl. (pengö p. quintal)	18.62	18.77	18.32	18.12	18.00	18.31	16.39	16.78	16.67
Braila: Good quality (lei p. quintal)	470	470	470	470	475	n. q.	* 455	* 442	* 402
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	115	113 1/2	108 7/8	108 3/4	108 5/8	85 3/8	79 3/8	85	81 7/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	131	n. 128	125 3/4	122	123	115 1/4	n. 107	109 3/4	104 3/8
Minneapolis: No. 1 Northern (cents p. 60 lb.)	141 1/8	140 1/8	135 1/8	135 5/8	135 3/8	121	112 1/2	119 1/2	110 7/8
New York: No 2 Hard Winter (cents p. 60 lb.)	142 7/8	142 1/4	136 5/8	135 5/8	134 1/4	129 1/8	117 1/4	124 1/4	113 1/8
Buenos Aires (*a*): Barletta, 80 kg. p. hectol. (paper pesos p. quintal)	10.95	10.90	10.90	11.05	10.84	9.40	6.47	9.53	6.86
Karachi: White Karachi 2 % barley, 1 1/2 % impurities (rupees p 656 lb)	31-11-0	30-8-0	29-8-0	28-0-6	29-0-7	25-0-9	23- 1-0	24-7-6	22-5-9
Berlin: Home grown (free at Brandenburg stations; Rm. p. quintal) 2)	3) 20.80	3) 20.80	20.00	20.00	20.00	20.20	20.15	20.53	20.29
Hamburg (c. i. f.; Rm. p. quintal):									
No. 1 Manitoba	13.07	12.77	12 07	11.70	11.79	9.63	* 9.17	9.51	8.95
Barusso (80 kg. p. hl)	10.68	10.44	10.00	9.83	10.11	8.81	6.23	8.74	6.50
Antwerp (francs p. quintal):									
Home-grown	125.00	125.00	122.00	122.00	123.00	101.00	61.25	100.90	69.10
No. 1 Manitoba (Atlantic) (in bond)	150.00	147.00	139.00	137.00	137.10	114.60	75.60	110.80	86.10
Barusso (in bond)	129.00	128.00	124.00	124.00	124.00	101.50	51.60	103.10	60.90
Paris Home-grown (delivery regional depots: 76 kg p. hl; frs p. quintal) 5)	147.00	147.00	146.00	146.00	146.00	79.60	104.75	89.95	91.50
London (Mark Lane): Home grown (sh. p. 504 lb. on the farm)	41/-	39/6	38/-	38/-	38/1 1/2	* 26/-	21/8 1/4	27/5 1/4	22/4 1/2
Liverpool and London (c.i f, parcels, shipping current month, sh. p 480 lb)									
French (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	24/0 1/4	19/0 1/4	* 25/-	* 19/8
South Russian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	* 30/3	n. q.	* 29/-	n. q.
No 1 Northern Manitoba (Atlantic)	45/11 1/4	n. 44/10 1/2	41/4 1/2	40/9	40/10 3/4	33/10 1/2	31/7	32/9	31/7 3/4
No 1 Northern Manitoba (Pacific)	46/1 1/2	44/4 1/2	41/9	41/9	41/9	33/9 3/4	31/2	32/5 1/4	31/2 3/4
No 3 Northern Manitoba (Pacific)	43/10 1/2	42/4 1/2	39/10 1/2	39/10 1/2	39/10	*31/10 1/2	27/10 3/4	30/5 1/4	28/5 1/4
Rosafé (afloat) 4)	7) 38/5 1/4	7) 37/1 1/2	8) 36/-	8) 35/6 3/4	8) 35/5 3/4	7) * 31/5	20/10 1/4	* 28/9	22/3 1/2
White Karachi; choice	43/3	41/9	39/-	38/4 1/2	38/9 1/2	n. q.	n. q.	* 31/7 1/2	* 29/3
West Australian (cargoes)	45/-	42/4 1/2	8) 39/7 1/2	8) 38/7 1/2	8) 39/7	7) * 30/-	9) 24/3	* 30/2 1/2	26/3 3/4
New South Wales (cargoes)	n. 45/-	42/3	8) 39/4 1/2	8) 38/7 1/2	8) 39/2 1/2	* 29/6 3/4	9) 21/9	* 29/9	* 25/7
Milan (*b*). Home-grown, soft, "Buono mercantile" 76-78 kg p. hl. (lire p q) 5)	124.00	124.00	124.00	123.00	123.25	111.30	91.30	114.20	95.80
Genoa: Sicilian Durum (c i f, lire p. q) 5)	138.00	138.00	138.00	138.00	138.00	n. q.	109.95	n. q.	* 113.05
Genoa (c i.f.; U S $ p quintal).									
No. 2 Manitoba (Pacific)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3.30	n. q.	* 3.38
No. 2 Canadian Durum 1	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	4.17	n. q.	* 4.09
Bahia Blanca, 79 kg p.hl (sh p. 1000 kg)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	104/4	n. q.	* 111/-
Rye.									
Berlin: Home-grown (free at Brandenburg stations; Rm. p. quintal) 6)	8) 17.10	7) 17.10	16.30	16.30	16.30	16.50	16.15	16.68	16.29
Hamburg (c.i.f.; Rm. p. quintal): Plata, 72-73 kg. p. hl.	8.36	8.18	7.68	7.55	7.51	5.22	6.12	5.27	5.76
Budapest: Pest rye (pengö p. quintal)	15.50	15.72	15.35	14.75	14.72	16.24	12.25	14.45	12.08
Warsaw: Good quality (zloty p quint.) 6)	19.62	19.62	18.88	18.88	18.50	12.74	14 62	13.25	14.82
Winnipeg: No. 2 (cents p. 56 lb.)	88 5/8	83 3/8	79	79 1/4	75 5/8	42 1/4	59 3/8	43 1/4	52 7/8
Minneapolis: No. 2 (cents p. 56 lb)	100 5/8	99 1/2	95 1/8	95	91 5/8	50 1/8	79 1/4	53 1/2	67 7/8
Groningen (*c*): Home-grown (fl. p. quintal)	8.17	8.00	7.85	7.80	7.79	6.79	7.45	* 7.08	7.35

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal* — *a*) Thursday prices. — *b*) Saturday prices. — *c*) Prices on preceding Tuesday.

1) August-July. — 2) From 16 Aug. 1934, for wheat, and July 1934, for rye, fixed producers' prices for the *price region* of Berlin city. See *Govt. Measures*, No. 2, p. 57, and this *Crop Report*, p. 609. By a new decree the December prices remain in force up to the end of the agricultural year. — 3) Until 25 Dec. 1934, minimum prices on the farm increased by transport costs; Jan.-Aug. 1935, spot quotations in the free market; Sept. 1935-Aug. 1936, prices in the regulated market, delivery current month; subsequently, fixed producers' prices (see note on p. 691). — 4) Aug.-Dec. 1934, 64 lb. p. bushel, then 63 1/2 lb. — 5) See note p. 609 *Crop Report*, August 1936. — 6) From Oct. 1936, prices for export rye. — 7) Shipping Jan. — 8) New crop, shipping Dec. — 9) Afloat.

DESCRIPTION	11 Dec. 1936	4 Dec. 1936	27 Nov. 1936	20 Nov. 1936	AVERAGE				
					Nov. 1936	Dec. 1935	Dec. 1934	Commercial Season 1)	
								1935-36	1934-35
Barley.									
Warsaw: Malting, good quality (zloty p. quintal)	26.00	26.00	26.00	26 00	26.00	16.62	20.69	* 15.97	19.60
Braila: Average quality (lei p. quintal).	n. 340	310	325	328	328	n. 237	256	* 237	* 244
Prague:Malting,av.qual. (crs.p quintal) 2)	131.00	131.00	129.50	129.50	129.50	131.00	131.00	* 131.70	131.70
Winnipeg:No. 4 Western (cents p 48 lb).	70	60	58 3/8	58 5/8	58 3/4	31	51 1/4	34 3/4	45 5/8
Chicago:Feeding(on sample; cents p.48 lb.)	74	78	74	75	74 3/4	46 1/2	n. 86	45 1/4	72 1/2
Minneapolis: No. 2 Feeding (c. p. 48 lb.) 3)	89 1/2	89 1/2	86 1/2	89 1/2	86 1/2	37 1/2	82	39 1/2	67 1/2
Berlin: Home grown fodder (free at Brandenburg stations; Rm. p quint.) 4).	16.80	16.80	16.60	16.60	16.60	16.80	16.05	17.08	16.16
Antwerp: Danubian (in bond; francs p q.)	111.50	111.50	106.50	103.00	103.35	69.85	67.35	74.10	69.45
London (Mark Lane): English malting, best quality (sh. p. 448 lb., on farm)	42/-	42/-	42/-	42/-	42/-	* 42/-	39/4 1/2	38/3	38/-
Liverpool and London (c.i f, parcels; shipping current month; sh p. 400 lb.):									
Danubian, 3 % impurities	n. q.	n. q.	n. q	n. q.	n. q.	n. q.	n. q.	* 15/3	* 19/2 1/4
Russian (Azoff, Black Sea)	n. q.	n. q.	n q.	n. q.	n q	14/9 1/4	n. q.	* 14/10	n. q.
Canadian No. 3 Western	n. q.	n. q.	n q.	26/6	26/3 1/2	18/3	24/1 3/4	18/0 1/2	21/10 1/2
Californian malting (sh p 448 lb.)	7) 43/-	7) 42/6	7) 41/9	7) 41/9	7) 41/9	25/4 1/2	n. q.	24/8 3/4	* 31/6
Plata (64-65 kg p. hl)	7) 24/3	7) 23/7 1/2	7) 22/1 1/2	7) 21/7 1/2	7) 21/6 1/4	15/2	7) 19/4 1/2	15/11 1/2	18/4
Persian (Iraquian)	24/4 1/2	23/-	8) 21/9	8) 21/3	8) 21/4	14/7	20/6 1/4	15/4 1/4	18/6
Groningen *a*). Home-grown, winter(fl p.q)	8.15	8.10	7.87	7.67	7.61	4.67	5.63	4.91	5.30
Oats.									
Braila: Good quality (lei p quintal).	n. q	n. q.	n. q.	n. q.	n q.	n q	n. q	* 294	n. q.
Winnipeg: No 2 White (cents per 34 lb.)	49 1/8	46 1/8	46 1/4	45 3/8	45 5/8	30 1/4	44 3/4	34 3/4	42 3/4
Chicago. No. 2 White (cents per 32 lb.)	51 1/2	48 1/4	47 1/2	48	46 7/8	31	57	32 1/4	50 7/8
Buenos Aires *b*): Current quality (paper pesos p. quintal)	5.65	5.50	5.25	5.40	5.39	n. q.	5.10	* 6.38	5.39
Berlin: Home-grown (free at Brandenburg stations, Rm p quint) 4).	16.40	16.40	16.20	16.20	16.20	16.40	16 25	16.79	16.39
Paris: Home-grown, black and other (delivery regional depots,frs. p. quintal)	119.75	118.00	118.75	118.75	119.85	55.45	46.10	66.40	48.50
London (Mark Lane) Home-grown white (sh. p 356 lb., on farm)	21/6	21/6	21/6	21/6	21/4 1/2	* 18/7	20/6	18/7 1/2	20/10
Liverpool and London (c i.f. parcels; shipping current month, sh. p 320 lb).									
Canadian, No. 2 Western (Atlantic) 5)	26/6	25/-	n q	23/-	* 22/10	* 17/3	20/11 1/4	18/7 1/2	20/10 1/2
Plata (f. a. q)	7) 15/3	7) 14/6	7) 14/-	7) 14/1 1/2	7) 14/1 3/4	7) 13/8 3/4	7) 12/8	14/5	13/0 1/2
Milan (*c*) (lire p quintal).									
Home-grown	94.50	94.50	94.50	94 50	94.50	98.00	57.50	* 97.10	61.25
Foreign	95.00	95.00	95.00	95.00	95.00	93.50	57.50	92.60	60.45
Maize.									
Braila: Average quality (lei p quintal).	255	255	265	225	229	* 228	* 190	238 1/2	* 220
Chicago: No. 3 Yellow (cents p. 56 lb.).	106	106 1/2	103	106 1/2	108 3/8	58 3/4	* 94 3/8	72 3/8	78 1/2
Buenos Aires (*b*): Yellow Plata (paper pesos p. quintal)	5.70	5.65	5.42	5.45	5.40	4.45	6.32	4.51	5.72
Antwerp (in bond; francs p. quintal):									
Yellow Plata	77.00	76.75	72.25	72.50	72.30	56.05	54.75	56.25	53.70
Cinquantino (Argentine " Cuarentino ")	81.50	82.00	78.50	80.50	81.25	58.10	59.50	60.45	58.25
Liverpool and London (c i f, parcels; shipping current month; sh. p. 480 lb.):									
Danubian	n.25/6	n. q.	n.23/-	n.23/3	* n. 23/1	16/7 1/2	21/3	* 16/11	* 21/-
Yellow Plata	22/8 1/4	22/4 1/2	20/6	20/8 1/4	20/5 3/4	16/1 1/4	21/1 3/4	16/0 1/2	19/8 1/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/4 1/2	* 17/-	21/4 1/2
Milan (*c*): « Alto Milanese » (lire p. quint.) 6)	82.00	82.00	82.00	82.00	82.00	83.50	54.55	81.75	58.50

---

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — n. = *nominal*. — *a*) Prices on preceding Tuesday. — *b*) Thursday prices. — *c*) Saturday prices.

1) Barley and oats: August-July; maize: May-April. — 2) From August 1934, monopoly price, paid to producers, for delivery Prague. (From August 1935, barley of good quality, not less than 68 kg. per hl.) see note p. 609. — 3) From August 1935, only delivered barley quoted. — 4) From 16 July 1934 for fodder barley; from 1 August 1934 for oats, fixed producers' prices for the *price region* of Berlin. See *Govt. Measures*, No. 2, p. 57, and, this *Crop Report* p. 609. — 5) Jan.-April 1935, Pacific. — 6) On and after mid-Oct, maximum fixed price, f. o. r. — 7) New crop, shipping Jan.-Feb. — 8) Shipping December.

Description	11 Dec. 1936	4 Dec. 1936	27 Nov. 1936	20 Nov. 1936	Average Nov. 1936	Average Dec. 1935	Average Dec. 1934	Average Commercial Season 1) 1935	Average Commercial Season 1) 1934
Rice (milled).									
Valencia (*a*): No. 3 Belloch (pesetas p. quintal)	n. q.	n. q.	n. q.	n. q.	n. q.	56.50	54.75	56.60	46.95
Milan (*b*) (lire p. quintal):									
Vialone, oiled 2)	160.00	160.00	160.00	160.00	160.00	195.00	151.10	159.20	177.10
Maratelli, oiled 2)	140.00	140.00	140.00	140.00	140.00	n. 161.00	127.40	136.60	138.05
Originario, white	119.00	119.00	119.00	119.00	119.00	133.00	106.60	121.75	102.80
Rangoon (rupees and annas p. 7500 lb.):									
No. 2 Burma	270-0	260-0	255-0	260-0	251- 4	266-4	210- 0	253-8	201- 2
Small mills specials	252-8	240-0	232-8	237-8	228-12	4) 205-8	* 176-13	227-4	174-12
Big mills specials	242-8	232-8	225-0	230-0	222- 2	4) 194-0	* 167- 8	219-9	167-13
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white, 25 % brokens	...	...	6.57	6.47	5) 6.46	3.88	3.45	4.18	3.25
No. 2 Japan, 40 % brokens	...	...	6.41	6 31	6) 6.30	3.68	3.30	3.96	3.09
Marseilles (*a*): No. 1 Saigon (c. i. f.; frs. p. quintal)	89.00	80.00	80.00	79.00	80.00	52.75	45.35	54.80	45.95
London (*a*) (c. i. f.; shillings p. cwt.):									
No. 3 Spanish Belloch oiled	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/10½	* 13/-	* 12/7	* 10/9
No. 6 Italian good, oiled	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/9	* 14/0½	11/10¾
American Blue Rose, extra fancy	17/7½	17/7½	17/7½	17/7½	17/7½	* 17/2	* 16/10½	* 15/5¾	17/3½
No. 2 Rangoon or Bassein (Burma)	8/9	8 6	8/1½	8/1½	8/-	7) * 7/3¾	7) * 6/7¼	7/8	6/7¾
No. 1 Saigon	9/3	8/9	8/6	8/3	8/3¼	7) * 6/6	7) * 6/8	7/5¼	6/3¼
Siam Super, white	9/7½	9/3	9/-	9/4½	9/1¾	7) * 8/1½	7) * 7/6½	9/2¾	7/5
Tokyo. Chumai (brown Japanese, average quality, yen p. koku)	29.40	29.20	29.60	29.50	29.65	29.05	29.07	29.87	26.09
Linseed.									
Buenos Aires (*a*): Current quality (paper pesos p quintal)	13.60	13.45	14.00	14.00	14.00	13.30	11.80	12.28	12.74
Bombay: Bold (rupees p. cwt.)	7-7-0	7-4-6	7-3-0	7-3-0	7-2-3	6-14-10	6-7-6	6-10-8	6-7-8
Antwerp: Plata (in bond; frs p. quint.).	164.50	163.00	160 00	163.00	160.35	149.00	102.75	127.55	107.60
London (c. i. f.; £ p. long ton.):									
Plata (delivery Hull)	11-11-3	11-6-3	11- 6-3	11- 6-3	11- 4- 4	10-11-7	9-10-0	9-13-2	10- 0-8
Bombay Bold	n. 14- 7-6	14-0-0	13-15-0	13-16-3	13-12-10	12-19-8	11-18-1	12- 5-5	11-17-0
Duluth: No. 1 Northern (futures-market quotations, cents p. 56 lb.)	207½	203¾	8) 202½	8) 205½	8) 204⅛	179⅞	188¾	172¼	186⅛
Cottonseed.								1935-36	1934-35
Alexandria (piastres p. ardeb).									
Upper Egypt	85.3	80.6	76.9	77.2	74 5	65.0	61.8	69.7	62.0
Sakellaridis.	80.00	75.2	71.5	71 5	68.8	59.5	59.2	* 64.0	57.7
London: Sakellaridis (c.i.f., delivery Hull; £ p. long ton)	n. 8-13-9	n. 8-6-3	n. 8-7-6	n. 7-10-0	n. 7-8-5	n. 6-6-7	6-0-7	n. 6-13-7	5-18-7
Cotton.									
New Orleans: Middling (cents p lb).	12.72	12.55	12.13	12.11	12.18	11.82	12.79	11.64	12.47
New York: Middling (cents p. lb.).	12.87	12.64	12.27	12.18	12.22	12.00	12.77	11.74	12.46
Bombay (rupees p. 784 lb.):									
Broach, f. g. (futures-market quotations)	9) 223-0	9) 219-0	9) 217-8	9) 218-8	9) 217-11	9) 214-12	9) 231-8	210- 4	230-4
Broach, f. g. (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	234- 8	* 226-0	* 220-12	233-4
Oomra, fine (spot)	209-0	202-0	202-0	205-0	10) 203-3	211- 0	* 217-0	198-12	208-8
Alexandria (talaris p. kantar):									
Sakellaridis, f. g. f.	19.00	19.05	19.30	19.80	19.47	17.40	16.05	16.11	15.20
Ashmuni-Zagora, f. g. f. 3)	13.35	13.15	13.00	13.15	13.09	14.90	13.74	13.61	13.34
Bremen: Middling (U. S. cents p. lb.).	14.95	14.61	14.25	14.31	14.29	14.12	14.63	13.88	14.38
M. g. Broach, f g. (pence p. lb.).	n. 5.45	n. 5.35	n. 5.35	n. 5.45	n. 5.52	n. 6.61	n 5.97	n. 5.86	n. 6.04
Le Havre: Middling (Gulf; frs p. 50 kg.).	377.00	369.00	358.50	357.50	357.35	247.75	260.00	240.00	250.75
Liverpool (pence per lb.):									
Middling, fair	n. 8.08	n. 7.96	n. 7.89	n. 7.93	n. 7.94	n. 7.54	n. 8.16	n. 7.58	n. 7.95
Middling	6.93	6.81	6.72	6.76	6.78	6.49	7.11	6.53	6.94
São Paulo, g. f.	7.01	6.91	6.84	6.88	6.89	7.13	7.08	6.81	6.99
Broach, good staple, f. g.	n. 5.56	n. 5.48	n. 5.43	n. 5.46	n. 5.46	5.72	5.69	5.43	5.61
C. P. Oomra, superfine	5.75	5.67	5.62	5.65	5.64	6.05	5.60	5.61	5.73
Egyptian Sakellaridis, f g. f.	10.73	10.80	11.45	11.29	11.45	9.70	9.01	9.18	8.52
Upper Egyptian, f. g. f.	7.56	7.47	7.38	7.46	7.40	7.72	7.77	7.49	7.55

* Indicates that the product was not quoted during part of the period under review. — n. q. = *not quoted*. — *n*. = *nominal* — *a*) Thursday prices. — *b*) Saturday prices.

1) Cottonseed: Sept.-Aug.; cotton: Aug.-July. — 2) Producers' prices, f. o. r., from mid-October. — 3) From August 1935, Ashmuni, f. g. f. quality only. — 4) New crop. — 5) 13 Nov.: 6.57; 6 Nov.: 6.24. — 6) 13 Nov.: 6.41; 6 Nov.: 6.08. — 7) New crop, shipping Jan.-Feb. — 8) December futures. — 9) April-May futures. — 10) Revised prices: 13 Nov.: 205-0; 6 Nov.: 201-0.

DESCRIPTION	11 Dec. 1936	4 Dec. 1936	27 Nov. 1936	20 Nov. 1936	AVERAGE Nov. 1936	Dec. 1935	Dec. 1934	Commercial Season 1935	1934
Bacon.									
London, Provision Exchange (*a*) (shillings, p. cwt.):									
English, No. 1, lean sizable	90/-	89/-	89/-	89/-	89/-	82/4	89/3	89/11	91/2
Danish, No. 1, sizable	92/-	90/-	90/-	90/-	90/-	82/9	86/-	88/6	87/11
Irish, No. 1, sizable	88/6	85/-	87/-	88/6	88/1	82/-	87/-	88/8	90/5
Lithuanian, No. 1, sizable	85/-	83/-	83/-	83/-	82/9	76/-	81/-	82/1	82/-
Dutch, No. 1, sizable	88/-	86/-	86/-	86/-	86/-	78/-	84/-	85/4	84/-
Polish, No. 1, sizable	85/-	83/-	83/-	83/-	83/-	74/-	80/-	80/-	80/11
Swedish, No. 1, sizable	88/-	86/-	86/-	86/-	86/-	78/-	82/9	85/2	84/4
Canadian, No 1, sizable	82/-	80/-	80/-	80/-	80/-	73/-	75/10	79/3	80/3
Butter.									
Copenhagen (*b*)· Danish (crs. p. quint.).	200.00	209.00	209.00	209 00	214.50	226.00	214.50	192.30	160.75
Leeuwarden, Commission for butter quotations (*b*): Dutch (cents p. kg.) 1).	68	68	70	71	70 1/4	56 3/4	54 1/4	48 7/8	44 3/8
Antwerp (frs. p. kg.)	22.70	22.75	22.05	21.00	21.05	19.60	19.10	17.90	18.00
Germany (*c*)(fixed prices; Rm p. 50 kg) 2):									
Butter with quality mark	130.00	130.00	130.00	130.00	130.00	130.00	130 00	130.00	129.04
Creamery butter	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	120.87
London (*d*): English creamery, finest quality (shillings p cwt)	137/8	137/8	133/-	133/-	131/10	123/2	109/8	119/6	109/6
London, Provision Exchange (*a*) (shillings, p. cwt):									
Danish creamery, unsalted	117/-	118/6	119/-	120/-	122/2	127/7	123/1	112/9	98/8
Estonian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 81/11	* 67/11
Latvian, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 86/1	* 69/3
Dutch creamery, unsalted	96/-	96/6	98/-	100/-	99/9	97/3	* 99/8	93/4	80/4
Argentine, finest, unsalted	95/-	97 -	n. q.	n. q.	n. q.	* 92/9	70/9	* 82/10	* 68/3
Siberian, salted	95/-	94/6	96/-	99/-	98/9	88/9	n. q	* 90/7	* 66/-
Australian, finest, salted.	101/6	102/6	105/6	107/6	107/3	88/10	70/7	89/7	70/2
New Zealand, finest, salted	104/-	104/-	106/6	109/6	108/6	89/6	71/9	91/11	72/7
Cheese.									
Milan (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1934 3) 4)	800.00	800 00	800.00	800.00	800.00	740.00	727.50	775.45	724.30
Parmigiano-Reggiano, 1st quality, production 1935 3) 5)	850.00	850 00	850.00	850.00	850.00	695.00	612.50	734.25	614.60
Green Gorgonzola, mature, choice.	7) 650.00	650 00	650.00	650.00	650.00	565.00	415.00	508.90	412.60
Rome: Roman Pecorino, choice (lire p q)6)	...	975 00	975.00	975.00	975.00	1,250.00	674.50	865.50	658.65
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheese mark) factory cheese, small (florins p. 50 kg)	15.75	16.00	15.75	16.00	16.06	15.81	15.12	14.84	18.64
Gouda.Gouda 45 + (wholemilk cheese, with the country's cheese mark) home made (florins p. 50 kg.)	21.25	21.00	21.50	22.50	22.50	23.06	20.75	19.75	22.52
Kempten (*c*) (Rm. p. 50 kg.)·									
Soft cheese, green 20 % butterfat.	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	23.25
Emmenthal from the Allgäu, wholemilk cheese, 1st quality	80.00	80.00	80.00	80.00	80.00	80.00	73.00	77.00	71.50
London, Provision Exchange (*a*) (shilling, p. cwt.):									
English Cheddar, finest farmers	87/-	87/-	85/-	85/-	84/9	76/6	86/-	* 77/8	* 83/5
English Cheshire, Nat. Mark Selected.	93/4	93/4	93/4	92/2	90 1	91/7	91/-	80/5	83/4
Italian Gorgonzola (*d*).	106/2	106/2	105/-	105/-	105/7	n. q.	82/6	* 102/2	82/9
Dutch Edam, 40 + (*d*)	50/6	50/-	51/-	51/6	50/4	52/1	46/7	44/4	54/5
Canadian, finest white	71/6	71/-	72/-	73/-	72/4	58/3	55/4	60/3	54/-
New Zealand, finest white	63/6	62/6	68/6	73/3	71/11	53/7	44/8	48/9	46/5

---

* Indicates that the product was not quoted during part of the period under review. — n. q = *not quoted*. — n. = *nominal* — *a*) Average prices Thursday, and Friday morning. — *b*) Thursday prices. — *c*) Wednesday prices. — *d*) Average prices for the sweek.

1) Home prices are increased by a consumption tax which was 0.80 fl from 18 Oct. to 14 Nov., 0.75 from 15 to 28 Nov., and 0 80 from 29 Nov 1936 onwards. — 2) See note page 306 of the *Crop Report* April 1934. — 3) Prices of 1934 cheese are compared, for the preceding years, with those of cheese made in 1933 and 1932, respectively; prices of 1935 cheese with those of cheese made in 1934 and 1933. The yearly averages refer to the periods from Sept. to August. — 4) On and after mid-Oct., prices for choice quality, f. o. r., producers' stations. — 5) On and after mid-October, prices for choicest quality, f. o. r., packing included. — 6) On and after 27 September 1935, export prices. — 7) See note on page 942.

Description	11 Dec. 1936	4 Dec. 1936	27 Nov. 1936	20 Nov. 1936	Average Nov. 1936	Average Dec. 1935	Average Dec. 1934	Average Commercial Season 1) 1935	Average Commercial Season 1) 1934
Eggs.									
Antwerp, auction: Belgian, average qual. (frs. p. 100)	48.00	50.00	55.00	69.00	70.50	68.00	45.75	48.35	42.80
Denmark (*a*): Danish for export (crs. per quintal)	130.00	140,00	150,00	160.00	160.50	166.80	146.80	106.75	103.60
Roermond, auction: Dutch, 57/58 gr. each, white (fl. p. 100):									
Fixed price for export into Germany	...	...	...	...	...	4.57	5.00	3.75	3.96
Price for other destinations	...	...	...	...	...	4.52	4.37	2.97	3.34
Warsaw (*b*): Polish, average weight 50 gr. each, various colours (zloty p. 1440, including box)	...	...	152.50	138.00	136.37	160.17	140.00	104.43	106.50
Berlin (*c*). German, big, new laid (Rm. p 100):									
marked « G I S », 65 gr. each	12.00	12.00	12.00	12.00	12.00	11.50	12.00	10.57	10.37
marked « G I B », 55/60 gr. each	10.00	10.00	10.00	10.00	10.00	10.00	11.00	9.34	9.03
London, Egg Exchange (*d*) (sh. p. great hundred):									
English, National Mark, specials	24/-	24/-	22/6	22/6	22 9	* 22/1	* 20/9¼	15/9	15/5
Belgian, 15 ½ lb p. 120	12/3	13/-	14/-	n. q.	14/-	* 14/1½	* 14/6	*11/3¼	* 11/0¾
Danish, 18 lb. p. 120	6)15/3	6)16/-	6)16/-	6)16 6	6)16/6¾	* 17/8½	* 16/11½	12/5	12/5¾
Northern Irish, 18 lb p. 120 2)	23/-	21/6	n q.	n. q.	21/-	* 22/-	* 19/0¾	15/1½	* 12/9¾
Dutch, all brown, 18 lb. p. 120	17/7½	17/6	17/9	17/9	17/9	* 18/7½	* 16/3	13/2¼	13/5
Polish, 51/52 grams each	8/7½	8/7½	8/7½	8/7½	8/7½	* 8/10¾	* 8/8¾	* 7/1¼	6/10¾
Chinese, violet	9/-	9/-	9/4½	9/6	9/6	* 9/11½	* 8/9	* 8/10½	* 8/3¾
Australian, 16 lb. p. 120	11/10½	12/1½	12/7½	13/1½	13/7	* 12/11½	* 12/1	*11/2½	* 11/5¾
Maritime Freights (Rates for entire Cargoes).								1935-36	1934-35
Shipments of Wheat and Maize.									
Danube to Antwerp/Hamburg. (shill. per long ton)	n. q.	n. q.	20/-	20/-	20/-	n. q.	n. 13/9	* 14/7	* 13/11
Black Sea to Antwerp/Hamb. (shill. per long ton)	18/6	18/6	17/3	18/3	17/-	9/11½	10/-	* 10/-	* 9/11
St John to Liverpool 3) (shill. per 480 lb.)	2/9	2/9	2/9	2/9	* 2/9	2/1¼	1/6	* 2/0¾	* 1/6
Port Churchill to United Kingdom (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/9
Montreal to United Kingdom (shill. per 480 lb.)	n. q.	n. q.	2/6	2/4½	2/4	* 2/2	n. q.	* 1/11	* 1/6¾
Gulf to United Kingdom 3). (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	* 2/6	2/6	* 2/6	2/6
New York to Liverpool 3) (shill. per 480 lb.)	n. q.	n. q.	n. q.	n. q.	n. q.	* 1/6	1/6	* 1/6	1/6
Northern Range to U.K./Cont. (shill. per 480 lb.)	2/6	2/6	2/6	2/6	* 2/6	* 2/-	n. q.	1/10	n. q.
North Pacific to United Kingdom (sh. per long ton)	28/3	28/3	28/6	28/6	28/4½	20/9½	19/-	19/3¾	* 18/1½
La Plata Down River 4) /Bahia Blanca to U. K./Continent (shill per long ton)	20/-	19/9	19/3	18/9	19/3	* 16/10	14/11	* 16/6½	14/11
La Plata Up River 5)/Necochea to U.K./Continent. (shill per long ton)	21/3	21/-	20/6	20/-	20/6	18/-	16/6	17/9½	16/2
Western Australia to U. K./Continent (shill per long ton)	n.28/-	n.28/-	n. q.	n. q.	n. q.	27/6	25/3	* 26/6	24/6
Shipments of Rice.								1935	1934
Saigon to Europe (shill. per long ton)	30/6	30/6	30/6	30/6	29/9	* 26/10	25/-	* 23/5	24/2¾
Burma to U. K./Continent (shill. per long ton)	n. q.	n. q.	n. q.	n. q.	n. q	n. q.	n. q.	* 21/8	* 23/3

---

* Indicates that the product, or the maritime freight, was not quoted during part of the period under review. — n. q. = *not quoted.* — n. = *nominal.* — *a*) Average prices for weeks commencing on Fridays indicated. — *b*) Average prices for weeks commencing on preceding Mondays. — *c*) Thursday prices. — *d*) Prices on preceding Monday.

1) Shipments of wheat and maize: Aug.-July. — 2) From 28 Feb. " Extra special " quality. — 3) Rates for parcels by liners. — 4) " Down River " includes the ports of Buenos Aires, La Plata and Montevideo. — 5) " Up River " includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — 6) 17 lb. p. 120.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR 1).

NATIONAL CURRENCIES	Parity (1)	Actual Exchange Rates				Percentage deviation from parity with U. S. dollar: premium (+) or discount (—)			
		11 December 1936	4 December 1936	27 November 1936	20 November 1936	11 December 1936	4 December 1936	27 November 1936	20 November 1936
Germany: reichsmark	40.332	40.231	40.230	40.225	40.226	— 0.3	— 0.3	— 0.3	— 0.3
Argentina: paper peso	71.959	n. 32.685	n.32.683	n.32.648	n.32.598	— 54.6	— 54.6	— 54.6	— 54.7
Belgium: belga	2) 23.542	16.911	16.914	16.909	16.912	— 28.2	— 28.2	— 28.2	— 28.2
	3) 16.950					— 0.2	— 0.2	— 0.2	— 0.2
Canada: dollar	100.000	100.077	99.943	100.021	100.144	+ 0.1	— 0.1	0.0	+ 0.1
Denmark: crown	45.374	21.886	21.872	21.858	21.830	— 51.8	— 51.8	— 51.8	— 51.9
Spain: peseta	32.669	n. 7.917	n. 8.324	n. 8.608	n. 8.825	— 75.8	— 74.5	— 73.7	— 73.0
France: franc 4)	6.633	4.662	4.661	4.656	4.650	— 29.7	— 29.7	— 29.8	— 29.9
Great Britain: £ sterling 5)	8.2397	4 9017	4.9006	4.8964	4.8899	— 40.5	— 40.5	— 40.6	— 40.7
Hungary: pengö	29.612	n. 19.775	n.19.775	n.19.775	n.19.775	— 33.2	— 33.2	— 33.2	— 33.2
India: rupee	61.798	37.049	37.009	36.985	36.925	— 40.0	— 40.1	— 40.2	— 40.2
Italy: lira	2) 8.911	5.261	5.261	5.261	5.260	— 41,0	— 41.0	— 41.0	— 41.0
	6) 5.263					0.0	0.0	0.0	— 0.1
Japan: yen	84.396	28.532	28.485	28.600	28.578	— 66.2	— 66.2	— 66.2	— 66.1
Netherlands: florin	68.057	54.438	54.406	54.245	54.075	— 20.0	— 20.1	— 20.3	— 20.5
Poland: zloty	18.994	18.837	18.850	18.820	18.827	— 0.8	— 0.8	— 0.9	— 0.9
Romania: leu	1 013	n. 0.729	n. 0.727	n. 0.728	n. 0.729	— 28.0	— 28.2	— 28.1	— 28.0
Sweden: crown	45.374	25.274	25.263	25.241	25.208	— 44.3	— 44.3	— 44.4	— 44.4
Switzerland	32.669	22.982	22.987	22.979	22.989	— 29.7	— 29.6	— 29.7	— 29.6
Czechoslovakia: crown	2) 5.016	3.531	3.535	3.538	3.538	— 29.6	— 29.5	— 29.5	— 29.5
	7) 3.512					+ 0.5	+ 0.7	+ 0.7	+ 0.7

---

1) Parities and current rates are both expressed in U. S. cents per unit of the foreign currency. (The £ sterling is expressed in dollars). The dollar contains 0.8886706 grams of fine gold, i. e. 40.93 % less than formerly. — 2) Former parity. — 3) New parity as from 31 March 1935. — 4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this — 5) Quotations for the Egyptian pound are omitted, its relationship with £ sterling being fixed (97 1/2 piastres = 1 £ sterling). — 6) New parity as from 5 Oct. 1936. — 7) New parity as from 10 Oct. 1936.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural products and other price-indices of interest to the farmer, as published in the different countries, are given in the following pages.

Owing to the substantial divergence which often exists in the value and significance of the data available, they are reproduced in their original form, without attempting formally to unite them.

In addition to the original data a summary table is given below.

Percentage variations in the index-numbers for November 1936.

COUNTRIES	Comparison with October 1936		Comparison with November 1935	
	Index-numbers of prices of agricultural products	Index-numbers of wholesale prices in general	Index numbers of prices of agricultural products	Index numbers of wholesale prices in general
Germany	— 0.6	+ 0.1	— 1.4	+ 1.3
England and Wales	0.0	+ 3.1	+ 8.4	+ 9.2
Argentina	+ 0.3	—	+ 19.6	—
Canada	+ 1.0	+ 0.1	+ 18.6	+ 6.2
United States: Bureau of Agric. Economics	— 0.8	—	+ 11.1	—
United States: Bureau of Labor	+ 1.3	+ 1.1	+ 9.8	+ 2.3
Finland	0.0	+ 1.1	+ 3.8	+ 3.3
Hungary	— 3.9	— 2.2	— 14.0	— 6.3
New Zealand	+ 3.9	—	+ 5.6	—
Netherlands	0.0	+ 1.9	+ 8.0	+ 10.8
Poland	...	...	...	...
Yugoslavia:				
plant products	+ 2.2	+ 1.3	+ 8.8	+ 4.2
livestock products	+ 1.1		+ 0.8	

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER 1)

DESCRIPTION	Nov. 1936	Oct. 1936	Sept. 1936	Aug. 1936	July 1936	June 1936	Nov. 1935	Nov. 1934	Year 1935	Year 1934
Germany (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of plant origin	111.1	110.6	111.4	115.2	117.2	116.9	111.3	112.7	113.4	108.7
Livestock	87.2	89.4	92.6	92.0	89.1	88.9	92.3	78.5	84.2	70.9
Livestock products	110.8	111.6	111.7	111.6	108.8	107.3	110.4	110.5	107.1	105.0
Feeding stuffs	104.7	103.8	103.5	106.6	110.2	111.2	104.8	104.7	104.6	102.0
Total agricultural products	103.2	103.8	105.0	106.4	106.1	105.7	104.7	101.1	102.2	95.9
Fertilizers	64.0	65.3	65.2	64.4	62.9	68.4	65.7	66.0	66.8	68.7
Agricultural dead stock	112.4	112.0	111.8	111.5	111.4	111.3	111.2	111.0	111.1	111.1
Finished manufactures («Konsumgüter»)	130.0	129.4	128.4	127.8	127.4	126.7	124.0	122.1	124.0	117.3
Wholesale products in general	104.4	104.3	104.4	104.6	104.2	104.0	103.1	101.2	101.8	98.3
England and Wales (Ministry of Agriculture and Fisheries) Average for corresponding months of 1911-13 = 100.										
Agricultural products 2)	129	129	133	124	121	121	119	120	123	119
Feeding stuffs	101	101	99	105	93	87	83	96	87	91
Fertilizers	89	88	88	88	89	89	89	89	88	90
Wholesale products in general 3)	110.8	107.5	106.0	104.4	102.1	99.3	101.5	95.3	99.5	96.4
Argentina (Banco Central de la Repûblica Argentina) 1926 = 100.										
Cereals and linseed	83.8	88.0	88.3	92.9	85.1	78.9	68.3	69.2	67.2	68.1
Meat	91.8	94.0	97.6	101.4	95.7	92.8	89.6	83.4	84.0	78.5
Hides and skins	104.5	90.5	89.0	83.4	77.7	78.1	92.4	69.6	80.5	71.6
Wool	139.4	110.7	109.1	106.4	100.1	98.9	89.6	72.9	74.6	84.3
Dairy products	86.4	86.0	90.8	92.9	84.6	86.6	97.3	65.5	88.8	62.3
Forest products	95.9	95.2	95.8	95.6	95.5	97.7	96.7	70.1	92.2	73.1
Total agricultural products	90.9	90.6	91.1	93.9	87.0	82.5	76.0	70.8	72.1	70.5
Canada (Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	75.6	76.4	74.2	74.1	63.2	60.8	57.8	55.7	57.1	53.8
Livestock and livestock products	79.5	76.2	74.7	71.9	71.6	70.7	77.1	70.4	73.9	67.7
Total Canadian farm products	77.1	76.3	74.4	73.3	66.3	64.5	65.0	61.2	63.4	59.0
Fertilizers	74.2	74.3	74.3	74.3	74.3	74.3	75.8	75.8	75.8	75.9
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.4	75.4	75.5	75.5	75.0	75.4	75.3	76.2	75.7	77.0
Wholesale products in general	77.2	77.1	76.4	76.2	74.4	72.3	72.7	71.1	72.1	71.6

---

1) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer* (Rome, 1930) and to the *Crop Report* (January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 696). — 2) Revised index-numbers due to the Wheat Act payments and, from 1 September 1934 the Cattle Emergency Act payments. — 3) Calculated by the *Statist*, reduced to base-year 1913 = 100.

DESCRIPTION	Nov.	Oct.	Sept.	Aug.	July	June	Nov.	Nov.	Year	
	1936	1936	1936	1936	1936	1936	1935	1934	1935	1934
United States (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100										
Cereals	127	128	130	129	109	87	90	109	103	93
Cotton and cottonseed	103	104	106	103	105	96	99	107	101	99
Fruits	97	104	105	108	117	115	83	94	91	100
Truck crops (market garden crops)	104	131	153	134	115	99	136	107	127	104
Meat animals	118	120	123	123	119	120	117	72	117	68
Dairy products	126	125	128	125	116	106	111	105	108	95
Chickens and eggs	141	127	119	112	106	103	140	125	117	89
Miscellaneous	133	133	141	152	131	120	103	123	97	108
Total agricultural products	120	121	124	124	115	107	108	101	108	90
Commodities purchased 1)	127	127	127	126	123	120	122	126	125	123
Agricultural wages 1)	—	110	—	—	108	—	2) 102	2) 93	95	88
United States (Bureau of Labor) 1926 = 100.										
Cereals	102.9	102.1	102,0	102.4	88.9	73.0	77.9	87.2	82.4	74.5
Livestock and poultry	79.7	81.2	83.8	84.5	82.0	83.2	83.1	54.0	84.9	51.5
Other farm products	82.9	80.2	78.6	77.8	78.2	75.8	73.5	75.8	73.4	70.5
Total agricultural products	85.1	84.0	84.0	83.8	81.3	78.1	77.5	70.8	78.7	65.3
Agricultural implements	92.9	93.9	94.2	94.2	94.2	94.2	94.6	91.9	93.7	89.6
Fertilizer materials	68.0	67.4	67.6	66.7	65.2	64.0	67.5	64.6	66.3	67.1
Mixed fertilizers	69.6	69.7	69,4	69.3	68.7	66.0	67.6	73.5	70.6	72.5
Cattle feed	126.0	111.8	107.5	114.2	107.9	80.7	69.1	108.2	88.4	89.4
Non-agricultural commodities	81.7	80.9	80.9	80.9	80.3	79.4	81.1	77.7	80.2	76.9
Wholesale products in general	82.4	81.5	81.6	81.6	80.5	79.2	80.6	76.5	80.0	74.9
Finland (Central Bureau of Statistics) 1926 = 100.										
Cereals	102	100	89	87	87	89	84	78	80	82
Potatoes	53	53	59	77	93	83	59	56	75	49
Fodder	65	67	64	60	59	65	55	64	62	72
Meat	75	74	80	86	88	82	69	70	75	71
Dairy products	83	83	81	81	81	80	92	88	83	75
Total agricultural products	81	81	78	79	79	78	78	76	76	73
Wholesale products in general	94	93	92	91	91	90	91	90	90	90
Hungary (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	74	77	72	71	71	70	86	71	—	—
Wholesale products in general	89	91	87	86	86	85	95	83	—	—
Italy (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	...	...	...	...	...	...	...	314.9	...	297.9
Wholesale products in general	...	...	...	...	...	...	...	277.2	...	275.8
New Zealand (Census and Statistics Office) Average 1909-13 = 100.										
Dairy products	107.4	109.8	122.6	119.8	114.2	106.9	111.6	76.3	91.3	76.7
Meat	170.4	159.4	156.5	155.0	158.4	159.8	164.8	147.6	157.6	151.8
Wool	119.0	105.6	105.3	107.4	111.7	102.2	93.3	73.4	82.2	127.3
Other pastoral products	131.4	132.7	123.7	124.4	123.1	121.6	118.3	81.7	96.7	88.8
All pastoral and dairy products	129.3	124.5	128.7	127.5	126.8	121.9	122.2	93.9	107.2	108.9
Field products	118.4	118.1	118.4	120.4	118.8	127.4	124.6	121.4	126.0	120.0
Total agricultural products	129.0	124.3	128.4	126.6	128.3	122.1	122.2	94.4	108.8	104.7

---

1) 1910-1914 = 100. — 2) October.

DESCRIPTION	Nov. 1936	Oct. 1936	Sept. 1936	Aug. 1936	July 1936	June 1936	Nov. 1935	Nov. 1934	Year	
									1935-36 3)	1934-35 3)
Norway										
(Kgl. Selskap for Norges Vel) Average 1909-14 = 100.										
Cereals	152	149	153	154	148	148	143	136	144	126
Potatoes	122	117	97	101	128	132	138	111	165	132
Pork	120	116	115	112	101	101	121	89	109	83
Other meat	140	139	150	155	155	146	144	129	146	137
Dairy products	139	139	135	135	135	137	135	132	139	132
Eggs	144	142	127	110	98	88	140	129	102	92
Concentrated feeding stuffs	127	128	130	127	127	126	129	120	123	109
Maize	132	132	134	132	128	125	121	110	113	101
Fertilizers	87	89	84	86	87	88	83	72	82	81
Netherlands										
(Bureau of Agriculture) Average 1924-25 to 1928-29 = 100.										
Plant products	55	57	57	57	52	47	50	58	50	58
Livestock products	53	53	52	54	54	55	50	49	51	49
Total agricultural products	54	54	53	55	53	53	50	51	51	51
Agricultural wages	68	68	68	68	68	69	69	71	69	71
Wholesale products in general 1)	69.5	68 2	62.6	62 7	62 3	61 6	62.7	—	4) 61.5	4) 63.0
Poland										
(Central Bureau of Statistics) 1928 = 100.									1935	1934
Raw plant products	...	42.6	37.2	34.6	34.4	40.0	34 2	32.3	33.9	35.6
Meat animals	...	39 6	40.7	40 7	40 5	40.6	38 3	33 9	35.5	36.7
Dairy products and eggs	...	43.9	39.1	36.9	37 8	35.8	48 8	47 1	41.2	41.2
Products directly sold by farmers	...	41 9	38.7	37.0	37 0	39.4	38.3	35 6	35 8	37.0
Flour and groats	...	48.2	44 0	40.3	38 0	39 7	36.4	38.4	36.7	38.8
Meat and lard-fat	...	44 1	47.6	47.8	47.5	46.6	45 7	38 2	40.8	43.5
Sugar, alcohol, beer	...	71.3	71.3	71.4	71 4	71.7	79.4	85.6	79.2	88.6
Products of agricultural industries	...	54.4	54.2	53.1	52 3	52.6	53.7	53.8	52 0	56.7
Total agricultural products	...	48.0	46.4	45.0	44.5	45.9	45.9	44.6	43 8	46.8
Commodities purchased 2)	...	65.3	64.9	64.8	64.4	64.0	66.4	68 3	66.3	70.3
Wholesale products in general 2)	...	55.5	54.7	53.9	53.6	53.9	54.4	53.6	53 0	55.7
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Plant products	65.7	64.3	60.4	60.8	60.9	64.5	82.5	59.1	68 2	57.4
Livestock products	65.4	64.7	64.9	62.6	61.1	56.2	58.9	55.6	56 6	55.4
Industrial products	72.1	71.1	69.2	67.6	67.5	67.6	69.4	65.3	66.7	67.4
Wholesale products in general	69.8	68.9	67.0	66.0	65.6	65.4	71.2	62.7	65.9	63.2

---

1) New index-numbers, calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — 2) In consequence of a revision of the index-numbers of the prices of fertilizers, the other series affected by these prices have also been revised. — 3) Agricultural year: Norway: 1st April to 31 March; Netherlands: 1st July to 30 June. — 4) Calendar year.

SUPPLEMENTARY INFORMATION ON PRICES

Some quotations on Friday 18 December 1936, are given in the following table. The qualities and price-units used in various markets will be found in the table " Weekly Prices by Products " pages 943-947.

WHEAT

Budapest	19.25
Winnipeg	128 1/8
Chicago	140 1/2
Minneapolis	153
New-York	153 5/8
Buenos Aires	11.30
Karachi	32-3-0
Antwerp: Home-grown	134.00
» Man. N° 1	161.00
» Barusso	135.00
Liverpool and London:	
N° 1 North. Manitoba (Atlantic)	48/10 1/2
N° 1 North Manitoba (Pacific)	48/3
N° 3 North. Manitoba (Pacific)	46/6
Rosafé	1) 40/4 1/2
Karachi	45/-
West Australian	46/3
New South Wales	1) 45/6

RYE

Budapest	16.10
Winnipeg	110 7/8
Minneapolis	116

BARLEY

Winnipeg	75 1/2
Chicago	79
Minneapolis	92
Antwerp	113.00
Liverpool and London:	
Danubian	n. q.
Russian	n. q.
Canadian N° 3 Western	n. q.
Californian	2) 43/6
Plata	2) 25/7 1/2
Iraqian	2) n 25/9

OATS

Winnipeg	52 3/4
Chicago	54
Buenos Aires	6.20
Paris	122.75
Liverpool and London:	
Canadian N° 2 Western	n. q.
Plata	16/9

MAIZE

Chicago	108 1/2
Buenos Aires	5 75
Antwerp: Plata	80 00
» Cinquantino	84.00
Liverpool and London:	
Danubian	n. 25/9
Yellow Plata	23/9
N° 2 African	n. q.

RICE (milled)

Rangoon: Birmanie N° 2 Burma	290-0
» Small mills	265 0
» Big mills	255-0
London: N° 3 Belloch	n. q.
» Italian	n. q.
» American Blue Rose	17/4 1/2
» N° 2 Rangoon	9/5 1/4
» N° 1 Saigon	9/10 1/2
» Siam Super	10/7 1/2
Tokyo	29.00

LINSEED

Buenos Aires	14 25
Bombay	7-11-6
Antwerp	170.00
London: Plata	12-5-0
» Bombay	15-2-6
Duluth	217

COTTON

New Orleans	12.60
New York	12.80
Bombay: Broach, f. g., futures	3) 221.12
» » (spot)	n. q.
» Fine Oomra (spot)	205.0
Le Havre	377.50
Liverpool: Middling, fair	n 8 03
» Middling	6 88
» Sao Paulo, f g	6.96
» Broach, f g.	n. 5 47
» C. P Oomras' fine	5 66
» Sakellaridis, f. g. f.	10 29
» Upper Egyptian, f. g. f.	7 56

BUTTER

Copenhagen	180 00
Antwerp	22.70
London: English	137/8
» Danish	111/-
» Estonian	n. q.
» Latvian	n. q.
» Dutch	94/-
» Argentine	94/-
» Siberian	94/6
» Australian	96/6
» New-Zealand	99/6

CHEESE

London: Cheddar	87/-
» Cheshire	93/4
» Gorgonzola (Italian)	112/-
» Edam 40 %	50/6
» Canadian	71/6
» New-Zealand	63/3

EGGS

Antwerp: Belgian	48.00
London: English	22/6
» Belgian	11/7 1/2
» Danish	16/-
» Northern Irish	22/6
» Dutch	17/7 1/2
» Polish	8/4 1/2
» Chinese	8/10 1/2
» Australian	12/-

---

1) Shipping January. — 2) Shipping Jan.-Feb. — 3) April-May futures.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

18-XII-1936.

AGRICULTURAL SCIENCE AND PRACTICE

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

THE UTILISATION OF ATMOSPHERIC NITROGEN BY MIXED CROPS

(*Second Part*) *

IV. — SOME EXPERIMENTAL DIFFICULTIES.

PILZ's Korneuburg experiment certainly, and others possibly, were vitiated by a high condition of the soil: and all of his experiments (three in the field and two in pots) were made with a *kalkreichem Boden,* in which nitrification may be supposed to be especially prone to occur. Pilz admitted active nitrification for Korneuburg, so that symbiotically-acquired nitrogen played there a relatively small part.

PILZ's pot experiments were made with soil, not sand. The danger of interference from nitrification with experiments involving nodule bacteria and their host plants was brought home vividly to the writer in 1933, when he made experiments with inoculation of peas in pots filled with a mixture of fallow soil with an equal weight of sand. The experiment was performed twice successively: the first time (summer) with 45 pots and the second time (autumn) with thirty. Not a single nodule was found in the first experiment, and an average of less than 3 nodules per pot in the second. There were four plants to a pot; phosphate and potash, but no nitrogen, was added. The soils from the pots were not analysed, unfortunately, but similar soil (without sand) that had been stored in bins was analysed in July by Dr. H. L. RICHARDSON, who found the following remarkable values: (mg. per kg. of dry soil):

	NH_3-N	NO_3-N
Soil stored 15 months in bin	4.1	70.3
Soil stored 9 months in bin	2.6	24.4

As it is known that such aeration as results from the filling of pots is conducive to rapid nitrification, it is probable that the soil in the pots had even more mineral nitrogen than these figures indicate; the nitrification was so active as pratically to arrest nodule formation, though the plants developed well.

(*) The first part of this article appeared in this *Bulletin*, No. 6, June, 1936.

In Pilz's experiments in pots, the thick sowings may have mitigated the effects of nitrification-nitrogen, since he used as many as 25 barley and 13 pea-plants per pot with 491 cm². surface. Nevertheless, the results of all such pot experiments, in which soil is used to grow leguminous plants with a view to investigating questions bearing upon their nodulation, should be received with caution, whether artificial nitrogen is added or not. Soil–especially when rich in chalk – is a potent source of non-symbiotic nitrogen, the production of which is intensified in pots to a degree far beyond what obtains in the field.

The experiments of Pilz were so carefully performed and so exhaustively documented that it is tempting to discuss then at greater length, but space will not allow of more than one further remark. This concerns the technique of pot experimentation with mixtures. Pilz used 25 barley and 13 pea-plants per pot, also 23 oats and 16 vetches. He used these numbers in pure culture and for the mixed cultures he used the same numbers in one pot. It is arguable that a fairer comparison would have half the number of each species when the plants were grown together. An ideal experiment would at least compare the effects of growing mixtures in similar proportions but with different rates of sowing. It is not proposed to pursue this argument further here, but the example shows one of the difficulties intrinsic to experiments with mixed vegetation. The number of combinations necessary for a satisfactory experiment with mixtures is considerably larger that what is needful for experiments with single crops.

The importance, for field experiments with mixed crops, of the nature of the crop preceding then can be estimated from a consideration of some results of Lyon (1925). Lyon was concerned mainly with the effects of legumes, grown pure and in mixture with a non-legume, upon the yields of succeeding crops; his results of the residual manurial value of mixed crops are among the most important of those that are available. However, Lyon did in some cases record the separate yields of the constituents of those mixed crops of which he later investigated the manurial value. The table on p. 243 shows Lyon's relevant results.

Commenting on the results, Lyon wrote:

Of Experiment 7: " These use of peas planted with oats appears in this case to have been detrimental. The clover left in the soil a large quantity of nitrogen, as shown by the yield of oats when grown alone amounting to nearly 77 bushels to the acre. If the peas added to the available nitrogen in the soil it was not enough to increase production, the soil already being very productive. "

Of Experiment 8: " More oats than peas were produced after clover (in Experiment 7), while the reverse was the case after timothy. The greater quantity of available nitrogen left by the clover apparently caused the oats to grow much more luxuriantly in that soil. Thus the crop of oats was more than twice as large following clover as following timothy. The large growth of oats interfered with the growth of the peas so that the yield of peas was less than half as much following clover as following timothy. "

Of Experiment 9: " The results of mixing peas with oats were, in this experiment, much the same as in experiment 8. "

Table II. — *Yields in Kg. per are of grain and straw of oats and peas harvested separately; oats grown alone and in mixture with peas in 1921.*
(after **Lyon**, 1925)

Crops of two previous years	Crops of 1921		Yields	
			without peas	with peas
(Expt 7)	Oats	Grain	27.5	19.0
		Straw	31.3	23.0
Wheat undersown with red clover	Peas	Grain	....	6.8
		Straw	....	7.6
Clover hay	Total crop	Grain	27.5	25.8
		Straw	31.3	30.6
(Expt. 8)	Oats	Grain	12.2	7.3
		Straw	11.8	10.3
Wheat	Peas	Grain	....	17.1
		Straw	....	18.0
Timothy	Total crop	Grain	12.2	24.4
		Straw	11.8	28.3
(Expt. 9)	Oats	Grain	19.2	15.0
		Straw	24.8	14.7
Wheat	Peas	Grain	.	13.5
		Straw	....	14.2
Rye	Total crop	Grain	19.2	28.6
		Straw	24.8	29.0

Of the three experiments: " So far as the results of these experiments may be used as a criterion, the practice of planting a mixture of oats and peas may be recommended when the soil is not provided with a large amount of available nitrogen, as is the case when legume residues have been plowed under. "

It should be borne in mind that **Lyon**'s remarks and recommendations were not solely based upon the results presented in Table II. but were based upon those results conjointly with the effects upon following crops (wheat, fodder maize, and wheat).

Lyon's remark regarding the detrimental effect of peas in oats apparently does not solely apply to the effects of the legumes upon their companion crop.

Thus, his remarks that in Experiment 7 the mixing of peas with oats appeared detrimental, referred mainly to the fact that the total yields 1921-4 were slightly reduced where peas were grown, while in Experiment 8 and 9 the total yields (and more especially the yields of grain) were increased. This, however, is more a question of residual value than of the immediate value of legumes in a mixture.

LYON'S experiments have the advantage of being performed upon a uniform plan, but they suffer from being carried out upon single plots, and from the absence of a statement regarding their N contents and manuring of the crops (except for the residual values of two years' previous cropping). They give no indication of the possible value of phosphate or potash, though they throw light upon the effects of residual nitrogen upon mixed crops.

The majority of experimenters who have worked with mixtures of soybeans and cowpeas in maize have agreed that the legumes have reduced the yield of maize grain. When examined closely, this alleged reduction in yield of maize is found to be an expression of the fact that a greater cereal yield per hectare can be obtained from a cereal when it is grown alone than when grown in mixture. Even if a companion legume has a marked beneficial action in promoting the growth of a cereal with which it is mixed, it should not be expected that the cereal should yield as much when grown in mixture as when the whole of the ground in consecrated to one crop.

There are evident difficulties regarding the way in which yields of single components may be compared in pure cultures and in mixtures. These difficulties have been discussed at some length by PILZ (1911); the safest method of comparison would seem to be that used by him, whereby in a mixture of one legume and one non-legume sown at approximately equal rates the yields of the non-legume in mixture is compared with that of the same non-legume grown in pure culture upon half the area occupied by the mixture. The basis may be said to be one of ground utilisation.

Looked at in this way, there seems to be little justification for the view that soybeans have reduced yields of maize. In fact, the reduction in yield of maize due to an admixture of legumes is so much less than half, in most cases, that the mixture is usually the more profitable crop. The position with soybeans and cowpeas in maize is (as far as can be deduced from the available data) very similar to that occurring with peas in oats in LYON'S experiments (Table II) at least as far as the mixtures on nitrogen-poor soils are concerned.

The most thorough study of mixtures of soybeans and maize is also the most recent, having been made by BROWN (1935) in Louisiana. BROWN provides a review of most previous literature upon field experiments with mixtures of soybeans and cowpeas with maize. An interesting feature of this experiments was the growing of maize alone with soybeans upon the same ground for five successive years. Four parallel pairs of plots were used, but there was no randomisation, and BROWN made no mention of manuring or of previous cropping. During the five years, the yields of maize grown alone tended to fall off, while the yields of maize grown in mixture with soybeans tended to rise. (In both cases yields per cropped hectare are intended, no correction for ground utilisation having been made). Whereas in the first two years the yields of maize grown in mixture were less than that from the pure crops, in the last two years the yields of maize from the mixture exceeded the yields from the pure maize; in all cases, per hectare, without correction. The numbers of stalks per row tended to rise throughout, and the efficiency per stalk thus became much more depressed without the beans than with them.

Brown's experiments introduce complicating effects: of continuous cropping upon the pure cereal, and of residual manurial value in the mixed crops; for these and other reasons they cannot be regarded as providing a satisfactory answer to the question whether soybeans, during their year of growth, act as providers of nitrogen to their companion cereal. Brown is, however, aware that the alleged depression of yield of maize by soybeans is largely a question of utilisation of space.

In the first year of his experiments, the yields per acre of maize grain and soybean hay when the two were grown in pure culture were 41.9 bushels and 6179 pounds, respectively, and an acre yield of the mixed crops was 33 9 bushels and 4020 pounds. " This was a considerably better acre production of both corn and hay when the two were grown separately ". Other investigators have reported similarly, *e.g.* **Wiggans** (1935).

Brown stated: " Growing the beans on the land every year (presumably *in mixture with maize* is intended—H. N.) would evidently have a greater beneficial effect on the soil than when grown every year in case a two-year rotation of corn (i.e., maize—H. N.) and soybeans was used. "

It is uncertain whether the data justify this, since **Brown** did not record results of the residual manurial value of pure soybeans. As already mentioned, it is not possible to disentangle, in **Brown**'s experimental results, the residual from other effects of the soybeans after his first year.

V. — TRANSFER IN GRASSLAND.

Though no experiments have been made explicitly to examine the possibility of transfer in grassland, there exist several testimonies to the improved growth-appearance of grass in swards into which clover has been introduced, without any artificial form of nitrogen having been applied.

Tacke's observations (1909) are notable. More recently, **Karraker** (1925) who grew pasture mixtures of bluegrass (*Poa pratensis*)with white clover, in which a large amount of sweet clover (*Melilotus*) appeared, wrote: " Equally good stands of bluegrass were secured on the bluegrass alone and on the bluegrass-legume plants. The growth of bluegrass on the latter plants, however, was strikingly better than on the former.... Comparative weights of the bluegrass where not secured at any time, but it is conservative to say that in early June the weight of bluegrass growth on the grass-legume plats was three times that on the plats with bluegrass alone. There was also a marked difference in colour. The bluegrass growing alone had a light green colour, while that with the sweet clover had a very dark green colour. The vigorous early growth of the bluegrass on the bluegrass-legume plats precluded the possibility that any appreciable part of the better growth here, at least early in the season, was due to material wasting from sweet clover growth above ground ". Some of the conclusions of **Willard** *et al.* (1934) regarding grass-lucerne mixtures in the field were as follows:

" The alfalfa-grass mixtures generally outyield pure grass. It is not uncommon for the mixture to yield more grass than the pure grass plots, leaving the alfalfa out of consideration. The protein content [percentage—H. N.] of grass grown in mixture with alfalfa was definitely higher than of that grown alone (an average of 44 per cent. higher for orchard grass (*Dactylis glomerata*) and 50 per cent. higher for timothy, at Columbus, Ohio.) (Tables 33 and 37). This was evident not only in the analyses but in the colour, height of growth, and general appearances in the field. The grasses were in every way similar to grasses which had received a liberal application of nitrogenous fertilizer. This effect is well known in red clover grass mixtures; the use of alfalfa instead of clover substitutes a perennial for a biennial legume and so makes the effect a continuous one (*). The grasses vary in their value for use in these mixtures ".

FERGUS (1935) has reported similarly for the value of legumes in pastures.

In a letter to the author, ELLIS (1936) has mentioned observing in New Zealand, where lupins had been planted for sand-binding purposes, that grass growing in the immediate vicinity of the lupins was dark-green and healthy-looking, though stunted elsewhere. GUSTAFSON (1935) quoted CHAPMAN (1934) as reporting a similarly beneficial effect of leguminous trees upon other trees near them: a manurial action of fallen leaves not being excluded. *Cf.* p. 5.

TRUMBLE, who was the pioneer ((TRUMBLE 1933) of the notion that a grass (*Phalaris tuberosa*) should have a suitable companion legume, wrote (1935): " In the course of trials at the Waite Institute and various country centres, it has been a matter for common observation that seeded grasses have been healthier and more vigorous when sown with legumes than when sown alone ". These observations, as well as the wide recognition accorded to the value of white clover in grassland, and the growing recognition of the fact that artificial nitrogen is not essential for good continued growth of grassland species in mixture with sod types of legumes, suggest the possibility of transfer. The possible benefits due to transfer cannot, without further study of the complex conditions of plants associated in grassland, be distinguished from those due to continual decay and decomposition of the legume. The available evidence, is, however, suggestive of transfer occurring. Whether the undoubted benefits derived from clovers in grassland are due to transfer or not, there is little need to add nitrogen to a clovery sward except to encourage early growth of grass to provide an " early bite. "

VI. — THE ROOTS OF MIXED CROPS

In discussing transfer in grassland, we are concerned mainly with the question of nitrogen accretion in the above-ground parts of grasses grown in mixture with legumes. No discussion of the problems of mixed crops would be complete if it ignored the residual manurial values. On this point there is not much that can be said beyond drawing attention to it. The work of

---

(*) Regarding the changing proportions of legume and grasses in lucerne mixtures during a series of years, see TRUMBLE (1935).

Lyon (1925) suggests that the residual manurial value of a mixture of legumes and non-legumes is not much inferior to the residual value of the legumes alone, and some Danish work (IVERSEN, 1930) shows also that the residual manurial value of a mixture may be appreciable. These experiments do not permit an evaluation of the relative value of mixtures and pure legumes as providers of nitrogen to following crops. Field experiments at Rothamsted with red clover and ryegrass, alone and in mixture, as preparation for wheat in 1931 and 1932 (see Reports for those years) complete a very short list. The differences found at Rothamsted were small, whether additional nitrogen was given to the wheat or not.

HOTTER, HERMANN, and STUMPF (1911) who washed out the roots of several crops from soil to a depth of 50 cm., were struck by the comparative richness in nitrogen of the roots of young *Wickhafer*; actually, the amount of N in the mixed-crop roots does not appear to have greatly exceeded that in the roots of wheat and oats in pure culture, though the wheat certainly, and the pure oats possibly, belonged to plants older than the mixed crop. They wrote: " Selbst der Wickhafer, der nur eine dreimonatliche Vegetationszeit hinter sich hatte, enthielt auf 1 ha. in seinem jungen Wurzelwerk eine Menge von 98 kg. Stickstoff, entsprechend 623 kg. Salpeter, und ausserdem noch in der oberirdischen Grünmasse 117 kg. Stickstoff ".

Unfortunately, these authors did not separate and analyse the individual components of their *Wickhafer*, or give the rates of sowing of their plants. They referred to earlier observations on nitrogen contained on roots, but since their time (1911) no similar work appears to have been done.

In the same volume as PILZ's paper there appeared a unique study by KASERER (1911) of the behaviour of roots when plants were grown in mixed culture in garden soil. KASERER found that there was practically no interpenetration or *Verfilzuug* when plants of the same species were grown together, no matter how densely, but that interpenetration increased with dissimilarity in the kinds of plants in the mixture. " Eine Graminee with einer Leguminose zeigte stets Verfilzung, am schönsten war dieselbe ausgebildet bei Gerste mit Wicke und Gerste mit Erbse ".

If leguminous plants excrete nitrogenous compounds into the soil, there may be a loss due to decomposition or to leaching unless the compounds can be immediately taken up. KASERER's observations on *Verfilzung* suggest that the roots of a mixed crop of legumes and non-legumes may be actually in contact, so that one plant " suckles " the other. It is of interest to note that in the West Indies there are two leguminous trees, both commonly used as " shade " plants for cacao, and both having the local name of *Madre de cacao* (FREEMAN; NICOL, 1935 *b*).

VII. — CONCLUSION.

When legumes and non-legumes are grown in association, the nitrogen per hectare in the total mixed crop may be affected by two factors. There is, firstly, the proportion of the relatively nitrogenous legume component, in the crop, and, secondly, a possible increase in the quantity of nitrogen in the non-legume, due to transfer (see below) from the legume. In field experiments, it is not easy to distinguish between these two factors unless careful botanical analyses are made in conjunction with chemical analyses of the individual component species; there is, in field work, the further complication that the nitrogen level in the soil is not negligible.

The practical result of the operation of these several factors is to reduce or to nullify the beneficial effects of nitrogenous manuring. In other words, whereas mineral nitrogen applied to a pure non-legume (and in some cases to a pure legume also) has the single effect of increasing the crop yield, artificial nitrogen when applied to a mixture of legumes and non-legumes alters the equilibrium of the species, and the composition of the crop is therefore affected by the resultant of the factors mentioned in the preceding paragraph. On the other hand, the total nitrogen content per hectare of such mixtures, whether arable or grassland, can be increased indirectly by other forms of manuring–such as with phosphates and potash – that increase the activity of leguminous plants.

The reasons for the depressant action of mineral nitrogen upon legumes, are firstly, that mineral nitrogen reduces the size and number of nodules (THORNTON and NICOL, 1936 *b*) at the same time tending to set up almost pathological conditions in the nodule (THORNTON and RUDORF, 1936); secondly, partly as a result of this impoverishment of the legume, the non-legume is preferentially assisted until it actually competes both by root and top with the legume. Mineral nitrogen thus turns a natural association into competitive rivalry. Given an initial proper balance of legumes and non-legumes, such as exists in good pasture, it is doubtful whether the addition of mineral nitrogen or of liquid manure leads to a gain in nitrogen in the crop; but such addition does upset the balance of legume and non-legume. Except for special purposes such as obtaining an " early bite " (the conditions for obtaining which have been well set out by PAGE, 1934)), the continuous manuring of grassland and of mixed arable crops with mineral nitrogen thus tends to be uneconomic.

Throughout the discussion, it has been assumed that adequate supplies of phosphate and potash are given to assist the leguminous component. Provided that these are given, and that the proper nodule bacteria are present in abundance, it appears that a mixed crop is able at least to supplement the soil's nitrogen to a degree sufficient for the growth requirements of both grasses and legumes. The growing of mixed crops on a wider scale than heretofore has been urged by VIRTANEN (1934; see also NICOL, 1935 *c*) as a basis for a rational nitrogen economy. Mixed cropping, in fact, seems to present us with the opportunity of gathering nitrogen through phosphorus.

Certain reservations should be made regarding the terms *transfer* and *excretion* frequently used in this paper. The word *transfer* is hardly the right one to use to describe the uptake by associated non-legumes, of nitrogenous compounds derived from legumes. *Transfer*, though it implies an active handing-over, has been used in this paper in default of a word better fitted to describe the passive uptake, by other plants, of the nitrogen made available, in the neighbourhood of legume roots, by living legumes.

The fact of excretion of nitrogenous compounds by legumes cannot be said to be proved by field experiments: it reposes mainly upon the sand-culture observations of VIRTANEN *et al.* upon a limited number of pure legumes and of pairs of plant species. The existence of combined nitrogen around the roots of some properly-inoculated legumes and in the tissues of companion plants grown by VIRTANEN *et al.* is supported by very strong evidence, but it is possible that this nitrogen was not *excreted* from the legume plants but was secreted – or excreted – by nodule bacteria in the rhizosphere.

Excretion by leguminous plants or by their nodule bacteria, living symbiotically, is presumably independent of the presence of non-legumes. The growing of legumes in pure culture would thus seem to be uneconomic as far as utilisation of the symbiotically-fixed nitrogen was concerned. It would seem that the fullest use of the symbiotically-fixed atmospheric nitrogen is made when a suitable non-legume is grown as companion to the legume. (By *suitable*, it is here implied that the non-legume is one capable of utilising the nitrogenous excretions). This argument does not take account of the residual manurial value of the legumes, but only of nitrogen economy during their life. The experimental evidence on the residual manurial value of mixed crops is insufficient, and the question of the residual values of mixed crops needs further investigation.

It is accepted that legume nodule bacteria cannot fix atmospheric N in conjunction with the usual laboratory media in the absence of their host plants, but it has not been shown that N fixation in the rhizosphere of a plant (as distinct from in the nodule) does not occur. Some work of GOLDING (1905) and of JOSHI (1920) is suggestive in this connexion, but the work of both these experimenters awaits confirmation.

Russian workers have reported increased non-symbiotic nitrogen fixation as occurring within the rhizosphere of some non-legumes (USPENSKY, 1933).

HILTNER (1904) thought that observed beneficial effects of legumes upon non-legumes in mixed crops could be accounted for by the stimulation of bacterial activity within the rhizosphere of the legume. Increased activity of nitrification near the roots of legumes was believed by TACKE (1909) and by LYON and BIZZELL (1911) to account for the benefit of mixed cropping.

There is still some uncertainty concerning the modes of transport by vascular strands between nodule and plant. It has been shown beyond reasonable doubt that the strands transport carbohydrate into the nodule, but it remains a matter of assumption that they also conduct into the host plant the nitrogen compounds elaborated in the nodule. BOND (1933) has reported that nitrogen was taken up by the soybean almost as quickly as it was fixed in the nodule, but he did not investigate the route, nor, apparently, did he consider any nitrogen compounds that may have existed in the culture medium in excess of the plant's requirements. BOND used the terms " excretion " and " transfer " to describe conditions of wholly internal interchange in the plant-nodule system. However, reverting to the meanings of these terms as used by the present author, it may be supposed that an inoculated legume takes up combined nitrogen which has been either excreted from its own nodules into the surroundings of its roots, or formed by nodule bacteria in the legume rhizosphere. So indirect a mode of assimilation seems rather uneconomical, however probable. The supposition may be extended to include an external interchange of nitrogenous compounds between neighbouring legumes of one more or species. Such excreted or externally-formed compounds may, of course, be converted to nitrate in the soil before being assimilated. An additional consequence of the occurrence of amino-acids near the roots of plants is that an effect will result from the carbon dioxide produced, along with nitrate, during decomposition of the organic nitrogen compounds.

The general question of actions in the root-surroundings might receive fuller attention that it has had.

HUGH NICOL.
Bacteriology Department,
Rothamsted Experimental Station,
Harpenden, England.

APPENDIX I

Recent work suggests that excretion from roots is not a property confined to nodule-bearing plants. DELEANU and his pupils in Bucharest have reported a negative migration (*Rückwanderung der Stickstoffsubstanz aus den Laubblättern u. s. w.*) from aerial parts of several plants, including *Salix, Populus* and *Triticum* as well as the legume *Robinia pseudoacacia.* This *Rückwanderung* appears to have been least marked in *Triticum.* In regard to *Salix,* DELEANU (1932) wrote:—

" Die Stickstoffsubstanz die aus den *Salix*-Blättern gegen das Absterben zurückwandert (negative wanderung) speichert sich nicht in dem Stamm oder der Wurzel auf-wie es einige Forscher behaupten-sondern wird direkt dem Boden abgegeben ".

And later (1934) he repeated this sentence with the addition: " In der negativen Wanderungsperiode die löslichen Eiweisskorper dem Boden abgegeben werden ".

POLOVRĂGEANU (1933) wrote (of *Populus* and *Robinia*): " Les sustances éliminées des feuilles ne s'accumulent ni dans la tige, ni dans la racine, mais émigrent vers le sol ".

This *Rückwanderung* is displayed by other elements besides nitrogen; it does not, of course, do more than restore to the soil substances previously taken from it.

It does not increase the soil's stock of nutrients.

A type of excretion from a legume affecting other plants of the same species has been recorded by THORNTON (1929), whose observations have been extended to mixed crops by LUDWIG and ALLISON (1935). MCBURNEY, BOLLEN and WILLIAMS (1935) have suggested that the rôle of legume nodule bacteria is not solely to fix nitrogen, but that they also excrete a growth-promoting substance. KNUDSON (1922) found that lucerne nodule bacteria have a marked beneficial effect upon the growth of orchid seedlings. See also THORNTON and NICOL (1936 *a*). The phenomenon of excretion thus seems not to be so isolated as was formerly thought.

APPENDIX II

Postulates for the design of experiments intended to ascertain whether N-uptake from an annual legume occurs (or during the first year of a herbaceous perennial).

1) In pots:

There shall be at least three parallel pots of each treatment.

As large a number of pairs of combinations of species shall be grown as is possible, as well as each species alone. There shall be at least two rates or ratios of sowing of each mixture.

Sand (or possibly the sand calcium-bentonite artificial soil used by GREENHILL and PAGE (1933) shall be used: in no circumstances soil, whether mixed with sand or not.

A basal dressing of phosphate and potash shall be given, and chalk if necessary.

The legume(s) shall be in principle inoculated with their appropriate nodule bacteria; a few pots may be left uninoculated as controls only.

Positioning of pots, and selection of pots for harvest from amongst those of the same stage, shall be at random.

A suitable number of pots shall be taken at random, from amongst the parallels, at least once before the final harvest, so as to obtain, by weighing and analysis of the plants, at least two points besides zero on the curve of growth. In order to avoid effects due to over-wintering, the final harvest shall be made not later than the end of the season of sowing.

It is desirable, but not essential, to give artificial nitrogen to some of the pots. If any is given, the dose must be small; about 2.5 mg. of N per kg. of sand is suggested. The nitrogen shall be added in one dose.

At all reapings, green weight and dry weight be recorded for each constituents separately, as also for tops and roots of each at the end. Each sample to be analysed for nitrogen, and percentage and total N content to be recorded.

Note. — The number of pots is bound to be large. Thus, if the legume at one rate of seeding be represented by C, and two non-legumes by M and N, half the rates of these seedings being represented by c, m, and n, the species-combinations might be as follows:

(1) C M N CM CN Cm Cn
(2) C M N CM CN Cm Cn cm cn cM cN.

If these combinations of two non-legumes with one legume at two rates of seeding are combined with and without nitrogen at one level, with two intermediate reapings and one final harvest, 126 pots will be required for (1) and 198 pots for (2) if only three parallels are employed. The combinations of M and N have been omitted, as have uninoculated legumes.

In such a factorial experiment, once it is known which interactions are unimportant, it may be possible to reduce the amount of absolute replication.

Each pot will give cause for several nitrogen analyses, so that the total number of nitrogen analyses may approach or even exceed a thousand. If the yields of the parallels are bulked, the number of analyses will be reduced, but no estimate of error between parallels will be possible.

This outline will give some idea of the practical experimental difficulties which a worthy approach to the apparently simple problemm will entail. Variation in the efficacy of different strains of nodule bacteria as fixers of nitrogen introduces additional complications.

(2) In the Field.

The lay-out shall be in the form of randomised blocks or possibly a Latin square, with or without split plots, so as to enable a statistical analysis to be made of the results. The experiment shall include single species as well as mixtures.

The land shall not have borne a leguminous crop or have received organic nitrogenous manure for at least two and preferably three years previously; it shall not be notably rich in chalk or be in high condition in respect of nitrogen.

Phosphate and potash shall be given as a basal dressing, and at least one level of added nitrogen shall be compared with no-nitrogen.

Provision shall be made for experiments on the residual manurial value during at least three years following the mixture experiments; some examination of the root-system is also desirable.

Botanical analyses of the crops shall be made in conjunction with estimates of the yield and nitrogen content of each component species on each plot.

Counts of thickness of stand shall be made in addition to records of rates of seeding.

Note. — In randomised field experiments it is not always essential to have complete replication within a block: some gain in precision may be obtained by taking advantage of the principles of *confounding* (FISHER 1935).

In order to avoid the disturbing effects of residual manurial value, experiments with mixtures of short-lived herbaceous plants should not last more than one season.

Experimentation with perennial woody legumes such as are used for "shade" crops in tropical agriculture requires separate consideration.

ACKNOWLEDGMENTS.

The help received from Dr. H. L. RICHARDSON, who made the nitrogen analyses of soil recorded on p. 241, and from MR W. G. COCHRANE, who read Appendix II, are gratefully acknowledged.

REFERENCES.

Titles of quoted papers have been omitted whenever they are sufficiently indicated in the text of this paper. The title given for bi-lingual papers is that of the language of the body of the paper, except for one Finnish paper, where the title of the summary has been substituted. Where thought necessary, languages have been indicated as follows. D, Danish; E, English; F, French; G, German; N, Dutch; P, Polish; R, Rumanian; S, Swedish; U, Finnish. The language of the summary, if there is one and which differs from the language of the main text, is shown by a small letter, thus, S. e. means text in Swedish with summary in English.

(1) [BARBADOS] (1901) Nitrogen in Leguminosae. *Trinidad Bot. Dept., Bull. Misc. Inform.* No. 31, p. 396.

(2) BJÄLFVE, G. (1935) *Medd. Nr* 455 *f. Centralanst. f. försöksv. på jordbr. Bakt. avdel. Nr* 65. S. e.

(3) BOND, G. (1933) Transfer of fixed nitrogen from bacterium to host in soy bean. — *Nature*, **132**, 748.

(4) BROWN, H. B. (1935) Effect of soybeans on corn yields. — *Louisiana State University* Bull. 265.

(5) BROWN, J. C. (1936) Pea and oat hay. — *The Times*, 23rd March.

*(6) BURRILL, T. J., and HANSEN, R. (1917) Is symbiosis possible between legume bacteria and non-legume plants? — *Ill. Agric. Expt. Stat.* Bull. 202: 115-181. [Extensive bibliography].

(7) CHAPMAN, A. G. (1934) *Report 14th Annual Meeting, Amer. Soil Survey Assn.*, Bull. 15, p. 39. (As quoted by GUSTAFSON, 1935).

(8) DELEANU, N. T. (1932) Die Rückwanderung der Stickstoffsubstanz aus den Laubblättern und ihre Speicherung im Stamme und Wurzel. — *Bull. Soc. Ştiinţe din Cluj*, **7**, 45. G.

(9) **Deleanu**, N. T. (1934) Migraţia negativă a substanţelor azotoase din frunze şi chestinunea acumulării lor în tulpină sau rădăcină. — *Acad. Română Mem. Secţ. Ştiinţ.*, Ser. III, **9**, Mem. 9. R. g.

(10) **Ellis**, Albert F. (1935) (Author of " Ocean Island and Nauru ", Sydney, N. S. W: 1935). — *Private communication.*

(11) **Fergus**, E. N. (1935) The place of legumes in pasture production. — *Journ. Amer. Soc. Agron.*, **27**, 367.

(12) **Fisher**, R. A. (1935) " *The Design of Experiments* ". Oliver and Boyd, Edinburgh and London.

(13) **Garola**, M.lle J., and **Demolon**, A. (1936) Nouvelles recherches sur l'action de l'azote, de la densité du semis... dans la culture du blé. — *Compt. rend. Acad. Agric. France* **22**, 296; Fumure azotée et teneur en azote du grain. *Ibidem*, **22**, 304.

(14) **Gericke**, W. F. (1927) Why application of nitrogen to land may cause either increase or decrease in the protein content of wheat. — *Journ. Agric. Res.*, **35**, 133.

*(15) **Goar**, L. G. (1934) Vetches and related crops for forage — *Univ. Calif. Coll. Agric. Expt. Sta , Circular* 336.

(16) **Golding**, John. (1905) The importance of the removal of the products of growth in the assimilation of nitrogen by the organisms of the root nodules of leguminous plants. — *Journ. Agric. Sci.*, **1**, 59.

(17) **Greenhill**, A. W., and **Page**, H. J. (1933) *Journ. Agric. Sci.*, **23**, 329.

(18) **Gurski**, J. H. (1927) *Doświadcz. Roln.*, Parts III-IV, 55. P. f.

(19) **Gustafson**, A. F. (1935) Composition of black locust leaf mould and leaves, and some observations on the effects of the black locust. — *Journ. Amer. Soc. Agron.*, **27**, 237.

(20) **Hiltner**, L. (1904) *Arb. d. deutsch. landw. Gesellsch.*, Heft 98, 59.

(21) **Hotter**, E , **Herrmann**, E., and **Stumpf**, J. (1911) Studien und Versuche uber den Wert der Wurzelrückstande verschiedener Kulturpflanzen als Stickstoffsammler und Gründünger. — *Zeitschr. f. d. landw. Versuchsw. Oesterreich*, **14**, 152. G.

(22) **Iversen**, Karsten, (1930) Oversigt over de for Landbruget vigtigste Resultater af Statensforsøg i Plantekultur. — *Tidsskrift for Planteavl*, **36**, 1, esp. pp. 101-104. D. (For further details of undersowing experiments, see:—

(23) [Statens Planteavlsudvalg], (1917) Forsøg med Dyrkning i Havre af Serradella of Tidlig Rødkløver til Grøngødning, 1910-16. — *Tidssk. Landbrug. Planteavl*, 24, 614. D.

(24) **Joshi**, N. V. (1920) Studies on the root nodule organisms of leguminous plants *Mem. Dept. Agric. India, Bact. Ser.*, **1**, 247. E.

(25) **Karraker**, P. E. (1925) Note on the increased growth of bluegrass from associated growth of sweet clover. — *Journ. Amer. Soc. Agron.*, **17**, 813.

(26) **Kaserer**, H. (1911) Beobachtungen über die Berwürzelung der Kulturpflanzen bei Reinsaat und bei Mischsaat. — *Zeitschr. f. d. landw. Versuchsw. Oesterreich*, **14**, 1022. G.

(27) **Kellerman**, K. F., and **Wright**, R. C. (1914) Mutual influence of certain crops in relation to nitrogen. — *Journ. Amer. Soc. Agron.*, **6**, 204.

(28) **Knudson**, L. (1922) Non-symbiotic germination of orchid seeds. — *Botan. Gaz.*, 73, 1.

(29) **La Flize**, S. (1892) Expériences sur les Légumineuses. — *Annales Sci. Agron.*, **9**, 174. F.

(30) LAWES, J. B., and GILBERT, J. H. (1891) The sources of the nitrogen of our leguminous crops. — *Journ. Roy. Agric. Soc. England*, **2** (Ser. III), 657.

(31) LIPMAN, J. G. (1910 *a*) *Ann. Report. for* 1909; *U. S. Dept. Agric., Office of Expt. Sta.*, Washington,. D. C., p. 150.

(32) LIPMAN, J. G. (1910 *b*) *Journ. Agric. Sci.*, **3**, 297.

(33) LIPMAN, J. G. (1912) The associative growth of legumes and non-legumes. — *New Jersey Agric. Expt. Sta.*, Bull. 253.

(34) LUDWIG, C. A., and ALLISON, F. E. (1935) Some factors affecting nodule formation on seedlings of leguminous plants. — *Journ. Amer. Soc. Agron.*, **27**, 895.

(35) LYON, T. L. (1925) The effect of some legumes on the yield of succeeding crops. — *New York (Cornell) Univ. Agric. Expt. Sta.*, Bull. 447.

(36) LYON, T. L. and BIZZELL, J. A. (1911) *N. Y. (Cornell) Univ. Agric. Expt. Sta.*, Bullo 294.

(37) LYON, T. L., and BIZZELL, J. A. (1913) *Journ. Amer. Soc. Agron.*, **5**, 38.

(38) MCBURNEY, C. H., BOLLEN, W. B., and WILLIAMS, R. J. (1935) Pantothenic acid and the nodule bacteria-legume symbiosis. — *Proc. Nat. Acad. Sci.* Washington, D. C., **21**, 301.

(39) MCCLELLAND, T. L. (1935) Coffee shade in Kenya. — *East African Agric. Journ.*, **1**, 107.

(40) METZGER, W. H. (1935), *Journ. Amer. Soc. Agron.*, **27**, 237.

(41) MILLER, E. C. (1931) "*Plant Physiology*". New York and London. (Esp. pp. 129-132).

(42) MORRISH, R. H. (1934) Crop mixture trials in Michigan. — *Mich. State Coll., Agric. Expt. Sta.* Special Bull. No. 256.

(43) NICOL Hugh (1934) The derivation of the nitrogen of crop plants, with special reference to associated growth. — *Biological Reviews*, **9**, 383.

(44) NICOL, Hugh (1935 *a*) *Empire Journ. Expt. Agric.*, **3**, 189.

(45) NICOL, Hugh (1935 *b*): THORNTON, H. G.; FREEMAN, W. G. In discussion of the author's lecture on "Mixed cropping in Primitive Agriculture", before the Planters' Group of the Royal Empire Society, October 1935, London. Abstract in *United Empire*, **27**, (1936) 98.

(46) NICOL, Hugh (1935 *c*) Leguminous and mixed crops· some important consequences. — *Fertiliser, Feeding Stuffs and Farm Supplies Journal*, **20**, 550.

(47) NILSSON-LEISSNER, E. (1934) Resultate von kombinierte Sorten- und Düngungsversuchen mit Weide- und Wiesenpflanzen. — *Verhandl. III Grünlands-Kong.*, (Zürich) 96. S. g.

(48) PAGE, H. J. (1934) The influence of manuring and other factors on the productivity of pastures. — *Vèrhandl. III Grünlands-Kong.*, (Zürich), 65, E. g.

(49) PETERMANN, A. Contribution à la question de l'azote· Première note. — *Mémoires couronnés et autres Mémoires publiés par l'Académie royale de Belgique*, **44**, 1889 (? 1890); Seconde note, *idem.* **47**, 1892 (? 1891). Troisième note, *Bull. de l'Acad. royale de Belgique.* 3ème série, **25**, No. 3, (1893), 267. F. (The author has had access only to reprints, in which dates and pagination may not be those of the originals).

(50) PILZ, F. (1911) Leguminosen und Gramineen in Rein- und in Mengsaaten mit besonderer Berücksichtigung der Stickstoffausnutzung. — *Zeitschr. f. d. landw. Versuchsw. Oesterreich*, **14**, 1150. G.

(51) POLOVRĂGEANU, I. (1933) Contrib. II: Variaţia cantitativă a substanţelor minerale in cursul desvoltărei frunzelor de *Populus pyramidalis* şi *Robinia pseudoacacia*. — *Univ. Bucureşti, Facult. Farmacie.* Mai 1933. R. f.

(52) Russell, Sir E. J. (1935) The Farmer's Guide to Agric. Research in 1934. Section: Soils and Fertilisers. — *Journ. Roy. Agric. Soc. England.*, **96**, 186.

(53) Stallings, J. H. (1926) The form of legume nitrogen assimilated by non-legumes when grown in association. — *Soil. Sci.*, **21**, 253.

(54) Sturdy, D. (1935) Observations on coffee under artificial shade. — *East African Agric. Journ.*, **1**, 135.

(55) Tacke (1909) Einige Beobachtungen über das Wachstum von stickstoffsammelnden Pflanzen (Klee) und stickstoffzehrenden Pflanzen bei Mischsaat. — *Prakt. Blätter f. Pflanzenbau und -Schutz*, **7**, 154; as quoted by Pilz (1911).

(56) Thornton, H. G. (1929) The rôle of the young lucerne plant in determining the infection of the root by the nodule forming bacteria. — *Proc. Roy. Soc. London, B*, **104**, 481.

*(57) Thornton, H. G. (1935) The symbiotic relationship between soil bacteria and higher plants, as exemplified by the Leguminosae. — *Trans. Third. Int. Cong. Soil Sci.*, **2**, 81. E.

(58) Thornton, H. G. and Nicol, Hugh. (1934 *a*) The effect of sodium nitrate on the growth and nitrogen content of a lucerne and grass mixture. — *Journ. Agric. Sci.*, **24**, 269.

(59) Thornton, H. G., and Nicol, Hugh. (1934 *b*) *Journ. Agric. Sci.*, **24**, 532.

(60) Thornton, H. G., and Nicol, Hugh. (1934 *c*) Further evidence upon the nitrogen uptake of grass growth with lucerne. — *Journ. Agric. Sci.*, **24**, 540.

(61) Thornton, H. G and Nicol, Hugh. (1936 *a*) Stimulation of roothair growth in legumes by sterile secretions of nodule bacteria. — *Nature*, **137**, 497.

(62) Thornton, H. G. and Nicol, Hugh. (1936 *b*) Reduction of nodule numbers and growth, produced by the addition of sodium nitrate to lucerne in sand culture. — *Journ. Agric Sci.*, **26**, 173.

(63) Thornton, H. G., and Rudorf, Joyce E. (1936) The abnormal structures induced in nodules on lucerne by the supply of sodium nitrate to the host plants. — *Proc. Roy. Soc. Lond., B*,**120**, 240.

(64) Trumble, H. C. (1933) The agricultural feature of *Phalaris tuberosa* and allied forms. — *Journ Agric. South Australia*, **37**, 400

(65) Trumble, H. C (1935) The grass-legume association in pastures. — *Journ. Austral. Inst. Agric. Sci.*, **1**, 117.

(66) Uspensky, E. E. (1933) Soil Microbiology in the U. S. S. R. (1917-1932) Sect. VI, S. 43. — *Verhandl. III Komm. Int. Bodenk. Gesellsch., Teil A, Sow. Sekt.*, Moskau. E

(67) Vartiovaara, U. (1933) Über den Stickstoffhaushalt des Hafers bei feldmässigen Mischkulturen zusammen mit der Erbse. — *Zeitschr. Pflanzenernähr. Dung., A*, **31**, 353. G.

(68) Virtanen, A. I. (1929) Undersøgelser over Bælgplantebakterierne og Bælgplanterne. — *Beret. f. N. J. F. s. Kongress i Helsingfors*, Sektion 8. D.

(69) Virtanen, A. I. (1933 *a*) Über die N-Aufnahme der Pflanzen. — *Die Naturwiss.*, **21**, 758. G.

(70) Virtanen, A. I. (1933 *b*) Nitrogen uptake of plants. — *Nature*, **131**, 534.

(71) Virtanen, A. I. (1933 *c*) Über die Stickstoffernährung der Pflanzen. — *Ann. Acad. Sci. Fenn.*, Ser. A, **36**, No. 12. G.

(72) Virtanen, A. I. (1934) Five years' experience with A. I. V. silage. — *Contrib. Lab. Valio*, No. 2. E.

(73) Virtanen, A. I. (1935) Over de stikstofvoeding der planten. — *Landbouwk. Tijdschr.*, **47**, No. 570. N.

(74) Virtanen, A. I. (1935) The chemistry of grass crops. — *Chem. and Ind.*, **54**, 1015.

(75) Virtanen, A. I., and von Hausen, Synnöve. (1930) The capability of grass plants to take advantage of nitrogen fixed by the nodule bacteria of leguminous plants. — *Contrib. Lab. Valio*, U. e.

(76) Virtanen, A. I., und von Hausen, Synnöve. (1931) Untersuchungen über die Leguminosen-Bakterien und -Pflanzen. X. Über die Tätigkeit der Leguminosenbakterien und die Ausnutzung des in Wurzelknöllchen der Leguminosen gebundenen Stickstoffs durch Nicht-Leguminosen. — *Biochem. Zeitschr.*, **258**, 106.

(77) Virtanen, A. I., and von Hausen, Synnöve (1935) Investigations ...XVI. Effect of air content of the medium on the function of the nodule and on the excretion of nitrogen. — *Journ. Agric. Sci.*, **25**, 278.

(78) Virtanen, A. I., and von Hausen, Synnöve (1936) Investigations ...XVII. Continued investigations on the effect of air content of the medium on the development and function of the nodule. — *Journ. Agric. Sci.*, **26**, 281.

(79) Virtanen, A I., von Hausen, Synnöve, and Karström, H. (1933) Untersuchungen... XII. Die Ausnutzung der aus den Wurzelknöllchen der Leguminosen herausdiffundierten Stickstoffverbindungen durch Nichtleguminosen. — *Biochem. Zeitschr.*, **258**, 106.

(80) Virtanen, A. I., Laine, T., and von Hausen, Synnöve (1936) Excretion of amino acids from the root nodules and their chemical nature. — *Suomen Kemistilehti*, B, **9**, 1. E.

(81) Virtanen, A. I., and Laine, T. (1935) Chemical nature of the amino acids excreted by leguminous root nodules. — *Nature*, **136**, 756.

(82) Virtanen, A. I., and Saastamoinen, S. (1933) Ueber die Stickstoffbindung bei Erlen (*Alnus*). — *Acta Chem. Fenn*, B, **6**, G.

(83) Virtanen, A. I., and Saastamoinen, S. (1936) Untersuchungen über die Stickstoffbindung bei der Erle. — *Biochem Zeitschr.*, **284**, 72.

(84) Westgate, J. M., and Oakley, R. A. (1914) Percentages of protein in non-legumes and legumes when grown alone and in association in field mixtures. — *Journ. Amer. Soc. Agron.*, **6**, 210.

(85) Wiggans, R. G. (1935) Pole beans versus soybeans as a companion crop with corn for silage. — *Journ. Amer. Soc. Agron.*, **27**, 154.

NEW SYSTEMS OF OLIVE PRUNING

At the XIth International Congress of Olive-growers (Lisbon, 1933), Professor Marinucci set forth, in a well documented report, the new principles for pruning olives which aroused great interest in all olive growing countries as, owing to these principles, a solution has been found for the important problem of regularity of olive tree yields. This tree, in fact, like certain others, such as the almond, apple, etc., is liable to vary considerably in production from one year to another.

---

(1) The numbers in brackets refer to *Bibliographical Notes* on p.

In almost all olive growing countries it was wrongly thought that the olive is incapable of giving regular harvests each year. In fact, many trials were carried out with a view to obtaining a regular annual production with trees which for a long time had given alternating yields, but, in the majority of cases, in spite of the application of manures, annual pruning and very careful cultivation, these trials were not crowned with success. This shows the particular importance of the trials carried out by Professors TONINI and ROVENTINI in Tuscany and Umbria (Italy). The two systems of pruning recommended by these two experts are based on the same principles and do not show any marked differences except as to actual pruning method. In spite of this, they have given the same results when applied in various places.

Last May, on the initiative of the Italian Ministry of Agriculture and Forests, more than one hundred technicians of the Agricultural Inspection Services and the Syndicates of Olive-growers met at Perugia and Leghorn to determine the progress made in the two provinces by applying these two systems of pruning which had tripled production in 10 years.

The " Tonini " system is based on the following fundamental priciples: (1) vase pruning, leaving only a limited number of branches; (2) leaving the annual growth in length of each branch (guide) without taking into account the height of the tree, as the function of the guide then becomes essential, as will be seen later; (3) the number of twigs per branch should be uniform both sides of the cut; (4) classification of the wood production (branches, twigs, etc.) of the olive; (5) annual pruning based on the knowledge of the specific function of various branches; (6) in transforming the old forms of pruning (reformed pruning) too severe pruning of one or all the principal branches should be strictly avoided.

In forming the frame-work in vase pruning the branches should be given the appropriate inclination (about 45°) and care should be taken to avoid all that might hinder the circulation of the sap (bends, bifurcations with too wide an angle, etc.), while leaving only the number of branches which are strictly necessary. Practice has shown that 5 to 6 branches, in rare cases 7, are more than sufficient even for large trees. Among these branches, the highest and best placed twig should be preserved as this constitutes the guide.

Both the " Tonini " and " Roventini " systems are based on the need for distributing the sap between the wood and the fruits while increasing the capacity of the olive to accumulate large reserves and in determined conditions. In other words, the " function of guide or cyme " will be, in respect of the circulation of sap, that of a regulating pump.

The object of pruning should consist in regulating the yield of the tree so as to prevent exhaustion and wide variations in production from one year to another. It is not reasonable to expect an olive tree to yield large quantities of fruit while, in the same year, supporting and maturing a great number of branches which should fructify the following year and at the same time accumulating the indispensible reserves of nutrition. It is certain that annual pruning requires a more perfect knowledge of arboriculture, a greater amount of labour and methods of cultivation more scientific that those which it is customary to follow. Unless the pruner has had a sound technical training and the most careful methods of cultivation are practiced, annual pruning will be completely useless as alone it is not sufficient to assure regular yields. The pruner should first observe the nature of the land and the variety and vigour of the tree.

In observing a tree pruned according to ordinary methods, Professor TONINI (2) remarked that the surface of the transversal section of the trunk is considerably less than the sum of the transversal sections of all the branches of the cyme. Consequently, the greater part of the sap rises more easily to the highest parts. On the other hand, a limited number of guides draw upwards little sap and the remainder supplies more nourishment to the lower branches.

In pruning for production, efforts should be made to make the distribution of the branches over the plant normal, uniform and in equilibrium. According to the above mentioned systems, pruning takes place branch by branch, beginning at the top of the tree. In the first place the best placed branch is chosen which should constitute the *guide* or *cyme:* it should be *isolated* and *higher* that the other branches by at least 10 to 15 cm. In pruning downwards, the operation should be carried out in such a way that the vegetation takes a pyramidal form on the branches.

It has been said that the results obtained with the two systems are the same, the " Tonini " system, however, is most suitable for olives in central Italy, that is, Tuscany, where the climate is sub-Apennine and somewhat low-growing olives are cultivated, while the " Roventini " system may be more satisfactorily applied in the olive groves of the south where the trees are large and old and grow well in poor and arid soils.

A system resembling the above has been followed for some time in certain olive growing regions in Catalonia (Spain) (*). Here the olive is formed of 2, 3 or 4 main branches springing from the grafting point and markedly at the same height. On these branches numerous vertical, vigorous branches are allowed to grow which yield the fruit. The intermediary branches, being nearer the centre, receive more sap than the others and grow more strongly. Their position, which prevents the light penetrating to them from the sides causes them to grow taller and the trees consequently take a rounded form which may be said to be constituted by a series of vertical branches, ramifying at the upper part and diminishing in length as they grow further from the centre.

It may be said briefly that annual pruning has the following advantages: (1) regular production may be obtained each year; (2) the size of the fruit is increased; (3) less serious wounds are produced; (4) the appearance of suckers is reduced; (5) the wounds are made in the tenderest part of the tree and consequently heal more surely and easily. The disadvantages are the following; (1) a greater amount of labour is required than in bi-annual or tri-annual pruning; (2) it is more difficult to find good specialised pruners; (3) it is less appropriate to poor soils and arid regions; (4) it requires good fertilisation and very careful cultivation.

(*) MATONS A. Contribución a l'estudio de l'esporga de l'olivera, Barcelona, 1933, 83 pp.

In the olive grove of Comm. **Grandi** at Rosignano (Leghorn) the " Roventini " system of pruning has been used since 1930 with excellent results. With the ordinary system of pruning, this grove produced an average of 26.47 quintals of olives, while with the " Roventini " system production increased from 26.81 quintals in 1930, to 53.71 quintals in 1931, to 55.46 quintals in 1932, to 73.11 quintals in 1933 and 121.14 quintals in 1934. This last yield was obtained in exceptionally favourable conditions. It will be seen, however, that olive production tripled. The oil yield per tree rose from 0.67 kg. in 1930, to 1.34 kg. in 1931, to 1.38 kg. in 1932, to 1.83 in 1933 and to 3.03 kg. in 1934, that is, considering only the the period 1930-1933, it too has tripled.

The " Roventini " system of pruning.

This figure shows the formation of a pyramid around each main branch with the cyme clearly defined.

(From a photograph kindly given by the " Federazione Nazionale dei Consorzi per l'Olivicoltura ").

In the olive grove of Mr. **Rossi Scotti** at Montepetriolo (Perugia) the " Tonini " system has been tried with identical results, in fact, before adopting this form of pruning, this grove had an average yield of 155.38 quintals of olives. In 1931, the " Tonini " system was started which has been improved upon during the following years and production has increased from 151.51 quintals in 1931 to 432.75 quintals in 1932, to 307.29 quintals in 1933, to 430 quintals in 1934 and to 298.77 quintals in 1935. During the last year the olive grove suffered considerably from the extreme drought which prevailed during the period of fruit formation. Figures concerning oil production in this grove are not available. The data given above were kindly supplied by Professor **Marinucci**.

As has already been said, these results are excellent, but should not be surprising as very much higher yields than these are obtained with ordinary methods of pruning in many olive growing regions in Spain, Tunisia, Algeria, Egypt, Cyrenaica, etc. Would be interesting to try, in these regions, the " Tonini " and " Roventini " systems in order to study their effect on olive production in general. In these countries, however, the costs of pruning and fertilisation are certainly much less than those incurred in the application of new systems. In this respect, it is unfortunately not possible to give any information as the expenditure per hectare and per plant involved in applying the " Tonini " and " Roventini " systems is not available. In any case it should be, for the reasons indicated above, much higher than the expenditure on ordinary or biannual pruning.

In the closing session of the Congress of olive-growing experts of Perugia and Leghorn, after a full and animated discussion in which a great number of directors of Travelling Chairs of Agriculture and several directors of syndicates of olive-growers took part, the following resolution was unanimously approved:

The members of the Olive-growers Congress organised by the Agricultural Inspection Services of Perugia and Leghorn, on the initiative of the Ministry of Agriculture and Forests, after examination of the reports presented by Professors TONINI and ROVENTINI, and following visits to the olive-groves established and reconstituted according to these systems:

(1) Recognises in the " function of the cyme " the fundamental principle on which olive pruning should be based as a rule;

(2) Observes that these systems correspond completely to the possibility of increasing the production of olives having a structure tending towards a pyramidal form and giving a direction to the branches of so formed or reformed olives in the two provinces;

(3) Proposes to establish, through the Provincial Agricultural Inspection Services experimental olive-groves with a view to testing the application of the new principles of olive pruning according to the specific conditions in the various Italian olive-growing provinces.

If, as affirmed by their inventors, these systems of pruning are adaptable to the varied pedological and ecological conditions, the solution will have been found of one of the most important problems of world olive production, that is, the regularisation of production. Alternating production is one of the principal causes of the atrophy which is sapping the world olive market during the last few years, as to regulate exportation production must first be regulated. In almost all countries differences (in the ratio 1: 2 and 1 : 3) are so evident from one year to another that this necessarily has a detrimental effect on the olive oil trade; in fact, prices fall in years when the yield is high while the quality of the oil exported is inferior in years when the harvest is small. In spite of this, however, it should be remarked that these systems require a great amount of labour, not only for pruning, but also for harvesting the fruit, anticryptogamic treatments, etc. Also, good system of manuring is needed and careful cultivation of the trees, matters which are of considerable importance for olive growing countries in the Mediterranean basin where labour is limited and expensive. On the other hand, many years of annual pruning, intensive fertilisation and good cultivation are needed before the trees, accustomed to alternating production, begin to produce with a certain regularity each year. To sum up, the " Tonini " and " Roventini " systems only tend to eliminate the production of wood which is useless or non-productive so that the maximum amount of sap is concentrated on the alimentation and formation of the fruit.

A. PASCUAL

Bibliographical Notes

(1) **Marinucci M.**, La potatura dell'olivo e la funzione di cima. — *Actes du XIème Congrès International d'Oléiculture*, Lisbonne, 26 novembre-1er décembre 1933.
(2) **Tonini**, *Note pratiche per la razionale coltivazione dell'olivo*, Ispettorato provinciale di agricoltura di Perugia.
(3) **Matons A.**, *Contribución a l'estudio de l'esporga de l'oliveira*, Barcelona 1933, 83 p.

CONTRIBUTION TO STUDIES ON SHEEP BREEDING IN TURKEY

SUMMARY

I. — Breeding of white Karaman sheep in Central Anatolia.

1. Maintenance and feeding.
2. Service, lactation, raising lambs.
3. Characteristics of the Karaman sheep.
   (a) Colour of the coat.
   (b) Wool and hair.
   (c) Body measurements.
   (d) Head of the Karaman sheep.
   (e) Tail of the Karaman sheep.
4. Live weight.
5. Variation in body measurements.
6. Wool of the Karaman sheep.
   (a) Characteristics of the wool.
   (b) Shearing and weight of the fleece.
   (c) Yield.
   (d) Fineness and uniformity of staple
7. Ways of improving Karaman sheep.

II. — Breeding of Kivirdjik sheep in West Anatolia.

1. Diffusion of Kivirdjik sheep.
2. Maintenance, feeding, breeding.
3. Characteristics of Kivirdjik sheep.
4. Milk production.
5. Wool production.
6. Origin of the Kivirdjik sheep.
7. Means of improving the Kivirdjik breed.

III. — Importance of Market organisation.

I. — BREEDING OF WHITE KARAMAN SHEEP IN CENTRAL ANATOLIA.

1. — Maintenance and feeding of Karaman sheep.

The Karaman sheep are mainly to be found in Central Anatolia. Their diffusion area comprises the plateau between the ranges of the Pontus mountains on the north and the Taurus on the south. To the west, the Karaman sheep breeding region stretches to the Eskichéhir-Kutaya-Aydin line. This country is composed of small hills and steppes broken by some mountain ranges. In the vilayets of East Anatolia there are only a few white Karaman sheep and in their place are found the Moor or Kizil-Karaman breed, that is to say the red-brown Karamans.

The Karaman is one of the hardiest breeds of sheep. In the districts where this breed is most diffused, the climate is completely continental: with very hot summers and severe winters, so that the climate resembles greatly that of the Russian steppes. In spite of the high temperature during the day, up to the first days of June, the nights are cold. In winter, the north winds prevail and in spring, there are sand storms. Towards the east, the winter is longer and the snow deeper. It is clear that such a climate demands a high degree of resistance. There are some winters in which losses reach 25 %, the animals being victims of the cold and snow storms. Feeding, naturally, has an important influence on the extent of the mortality due to the cold, because if the animals are badly nourished, at the beginning of winter they will have less resistance than well fed sheep.

In Central Anatolia, it hardly ever rains in the summer, but only in the spring and autumn. The small quantity of rainfall and its short duration are not conducive to good vegetation on the pasture lands, and if the rains fail, the animals suffer from hunger. The strong evaporation brings to the surface water impregnated with mineral matter contained in the sub-soil, and produces, in spite of the drought, marshy conditions and a growth of saline plants which are not well accepted by stock.

As the vegetation depends on the climate, it is clear that the latter influences the alimentation of the sheep. In this respect the animals have to go through two bad periods every year: one of drought in the summer and one of cold in the winter. The peasant prefers sheep to other cattle, because they are more resistant to food shortage, being used to find their nourishment for themselves during the whole year. During the greater part of the winter the sheep remain in the open and graze on the dry grass of the steppes, which scanty nourishment they obtain by scratching the snow. These extremely low requirements are only found in the primitive breeds of sheep and in Angora goats.

As a result of climatic conditions, feeding and primitive maintenance, there has developed in the flocks through the centuries a natural selection as to this limitation of requirements and hardiness. Only the strongest animals survive, capable of resisting the excessive cold and the snow storms of the winter, the heat and the drought of the summer, bad nourishment and even famine.

The spring is the most favourable season for sheep; when the steppes are green, the flocks pick up again visibly. But this period of well-being is of short duration, 50 days only. Drought soon follows owing to the want of rainfall. In the middle of summer the pasture lands are completely dried up and the grass only grows in a few valleys. During the hot months of the summer, the sheep graze during the night and early morning. During the heat of the day they hardly graze at all.

In autumn, after the harvest, the sheep have again a period of abundant nourishment on the stubble. Thanks to the rains, the steppes are again green, so that the animals find good grazing once more. The flocks sometimes migrate long distances: when the drought is too severe in Central Anatolia, they move to the mountainous regions, where the grass is still green, and there they remain all summer.

During the cold and snowy days, an additional feed is given to the sheep who cannot leave the primitive pens, consisting of straw and a 100 to 200 gm. of barley per head, which is simply thrown on to the snow. Straw is given generally for 2 or even 4 months of the winter, but the barley ration is often wanting. It is only in isolated cases that better winter feed is given, comprising hay, barley, maize and, in the oil producing regions, sesame and linseed cakes. Rarely, 200 gm. of concentrated food, 1 kg. of hay and a sufficiency of straw are given per head during two months of winter. In the eastern vilayets it is the custom to give more hay than in the western vilayets. In the east clover is also given as a green feed. In the north, in the neighbourhood of Kastamonie and Bolu, the animals are given hay or leaves chopped and mixed with the straw, in the proportion of 1.5 to 2 kg. per head, and sometimes also clover and barley. In the forest districts, branches and leaves of willow and poplar trees are given, which have been collected during summer and autumn for supply during the winter.

There is very little water in central Anatolia, especially in summer. Water is found in the rare streams and springs, and to a certain extent in the wells, which are often 40 to 50 metres deep. In summer the sheep are taken to the drinking places twice a day, morning and evening; in winter, once only, at midday.

In winter and in summer, the sheep remain in the open, without shelter, exposed to all changes of weather. There are, however, regions in central Anatolia, where at the end of autumn, shelters are constructed, where the sheep can pass the very cold nights and the days of heavy snow in the winter. These shelters are roofless and partitions are formed of faggots tied together. The manure of the animals is heaped up near the shelters and, when it rains, is used as a dry litter. At the beginning of March, the flocks leave these shelters and remain in the open day and night.

Sometimes the sheep are sheltered in primitive open pens, situated near the clay huts; they are covered with straw or brambles, one side being open. Sometimes the barns are made of clay.

2. — SERVICE, LACTATION, RAISING LAMBS.

The serving of the ewes and, in consequence, lambing, depends on the spring pasturage and the season. When spring is late in Anatolia, lambing is also late. In Thrace, service is earlier, in July. The same applies to the Bursa and Balikesir provinces. In central Anatolia, in the neighbourhood of Ankara and Cochhissar, service does not take place before the end of August, chiefly in September or October; in the eastern regions even in November. The lambs, then, are not born until the end of the winter, when the weather is often still cold, or at the beginning of spring, when the ewes with lamb can already find a few tufts of fresh grass on the grass lands. In Thrace, the rams are left with the flocks until one month before lambing. In the East the rams remain with the flocks until August, then they are kept separate up to November the month in which the ewes are mated. One ram per 25 ewes is usually calculated; sometimes only 20, or as many as 30. Lambing takes place in the open; the mother ewes do not receive any care, or additional rations. As milk production is of great importance in central Anatolia, the lambs only remain with the mother a very short time: from 14 days to a month, sometimes 1 ½ months and very rarely 2 months. Sometimes it is the custom to leave the lambs with the mother only 3 or 4 days, or even to separate them immediately after birth. The mother ewes have to find their own nourishment in the pastures and the lambs are suckled only morning and evening. Sometimes at the end of a month, they only receive their mother's milk once a day, and the following month once every other day. Three—month lambs are forced to graze. Often all the lambs are separated from the mothers on the same day, without taking into consideration the difference in ages and the state of nutrition. As this period is very important for the development of the animals, great differences are found in the live weight of Karaman lambs of the same age.

The lambs separated from the ewes, are placed either in very primitive sheep-folds, having very small windows or even none at all, or else in caves or underground pens, which are certainly far from hygienic. The shepherds do not trouble to protect the lambs except against bad weather and cold. The underground pens measure 1 m. high and 2 to 3 m. long and have an opening of 50 × 50 cm. The young lambs remain there for about 3 weeks. Naturally these underground shelters, dark and draughty, do not correspond even to the most elementary requirements for rearing lambs. At 3 months, the lambs join the flocks and graze during the hot season night and morning, near the village.

While they are suckling, the Karaman mother ewes have to find their own food in the pastures. If the snow persists too long, they find little fodder and become very thin. Very occasionally the ewes who have little milk, are given a supplementary feed of 50 to 100 gm. of bran.

The milk production of the Karaman ewes has a certain economic importance. According to ABIDIN, the quantity of milk produced is 1 kg. per day in the most favourable circumstances, and for the entire period of lactation from 29.5 to 41 kg. According to observations made at the former School of Agriculture at Ankara by KADRI, Karaman ewes have given 410 gm. of milk per day for one year and 533 gm. the following year. The total quantity of milk amounted to 50 to 65 kg. KADRI attributes this large production to the fact that this little flock consisted of the best milch ewes of the Karaman breed; nevertheless, as a general average, it is not possible to estimate more than 25 kg. In any case, the milk yielded by Karaman ewes is much inferior to the production of Kivirdjik ewes. The milking period lasts 3, more often 3 ½ months, to 4 months.

As a rule, milking begins 2 to 2 ½ months after lambing, more rarely after 3 months. The ewes are milked once or twice a day, according to pasture conditions and the demand for milk and milk products. It has been noted that as with cows so with ewes, the climatic conditions as well as the abundance and the quality of the pastures have a great influence on milk production. Storms, rains, periods of cold or great heat, rapid changes in the weather and sand storms cause the milk yield to diminish.

Yoghurt, cheese and even butter are made with ewes' milk. The small owner himself prepares the milk and makes cheese and butter for the needs of his family in winter. The large owners have a contract with the cheese factories, which agree to buy all the milk for about 3 months. Milk obtained after that period is used for domestic purposes.

After the lactation period, a selection is made among the flocks and they are classified according to their age and the condition of their teeth. The oldest animals and those who, owing to loss of teeth, can no longer utilise the poor coarse grass of the pasturage, are eliminated. The ewes who are still good for breeding are again served, while the other ewes are sold immediately, or after some slight fattening on the pastures.

The small size of the Karaman sheep in central Anatolia is attributed chiefly to the unsatisfactory feeding, as the growth of Karaman lambs in their early youth is more rapid than that of lambs of other similar breeds. In the far regions of the East and in the western vilayets, the white Karaman sheep are much larger, because the feeding conditions are better than in central Anatolia. Breeding may have also a influence on the size of the animals. For generations, in central Anatolia, wethers from the same flock are constantly used, resulting in in-breeding without any kind of system. The main reason why harmful results from in-breeding are not more evident is a strong natural selection, which eliminates all the animals having marked defects. In the second place, breeds living under unfavourable climatic conditions appear to be less affected by inbreeding than improved breeds. It is to this method of breeding that must be attributed in part the uniformity of type which is found in the flocks of Karaman sheep in central Anatolia. The differences in size and growth observed in flocks is caused mainly by the simultaneous separation of the lambs of various ages and by the serving of ewe lambs which have not attained their full development.

3. — CHARACTERISTICS OF THE KARAMAN SHEEP.

(a) *Colour of the coat.*

The Akkaraman or white Karamans and the Kizil-Karaman or red Karamans, which ABIDIN also calls More-Karamans or Karaman-Kurds are distinguished by the colour of the coat. ABIDIN notes that for the Akkaraman breed, the white colour of the parts covered with wool and with stiff hair is characteristic, while in the Konya region, he mentions animals having a black ring round the muzzle. Entirely white sheep are found principally in the steppes to the west of central Anatolia, while in the neighbourhood of Ankara, as in the Konya region, animals having a black ring round the muzzle or black markings on the hoofs predominate or the two characteristics occur together. Sheep with black rings in the form of spectacles round the eyes are often found. The extent of these markings varies. Besides these animals with well determined black markings, there are others in which the markings on the head, the legs or the flanks are of a blackish, red-brown or dark brown colour and are less distinct: sheep are also to be seen with the entire fleece marked with these colours. Ihsan ABIDIN mentions that these originate from crossing Akkaraman and Kizil-Karaman breeds, which took place during the world war.

For the Kizil-Karaman breed, a red-brown coat is characteristic; varying in intensity of coloring and sometimes also shading towards yellow. Sometimes a brown-black colour is found, and even blue-gray. The Kizil-Karamans are somewhat rare in central Anatolia, but to the east of the country, in the vilayets of Erzincan, Erzeroum, Bayazid and Van, they are completely replacing the Akkaramans. The colouring of the Karaman sheep increases continually on going from east to west of Anatolia. It is possible that this is directly dependent on the intensity of the solar rays. The steppes always rise from west to east, so that the eastern vilayets (place of origin of the Karamans) are found at an altitude of 2000 m. and more above sea-level. The solar rays become more and more intense with increase of altitude and especially the action of the ultra-violet rays increases. Probably the intensive colouring forms a kind of protection against the action of these rays. The Kizil-Karamans give the impression of being a breed considerably different in body structure from the Akkaramans. It is probable that they belong to another and later introduction into Anatolia. The breeding of Kizil-Karamans is especially common among the Kurds.

(b) *Wool and Hair.*

The head and legs of the Karaman sheep are covered with a stiff hair, silver-white or china-white in colour. This latter colour results from a stronger formation of the hair roots. Hair may sometimes be found on all the nape and part of the neck, and covers the legs back and front, well above the joint. The wool may cover more or less the nape of the neck and the jaws of the animal. The belly is often covered with the same short hair as the head and legs. The wool does not cover the belly except in very young sheep. As in other indigenous sheep, the wool of the belly is replaced by bristle after the first lambing.

(c) *Body measurements of the Karaman sheep. Method of measurement.*

The measurement of Karaman sheep have been made on adult animals, at least 4 years old, belonging to the principal breeding reglons of the Karamans, as Kochhissar and Malikey. Like all non-domesticated sheep, the Karamans wriggle and jump about when measured and much patience is required and the work has to be repeated several times. Measurements indicated in Table I were made.

TABLE I. — *Measurements.*

Rule Measurements	Compass Measurements	Tape Measurements
Height at withers	Length of head	Circumference of tibia
» » back	» » forehead	Length of ear
» » crupper	Maximum breadth of head	Width of ear
» » shoulder joint . .	Width between shoulder joints	
» » elbow joint . . .	Width between haunches	
» » thorax	Breadth of pelvis	
Leg length (Height at withers - chest depth)		
Length of body		

Height and depth measurements. — Those concerning the height at withers, at back and at crupper will first be given. The absolute measurements are given in the following table:—

TABLE II. — *Variations in height (in cm.) at withers, at back and at crupper and the numbers of animals corresponding.*

Height at withers	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Numbers of animals	2	—	2	8	8	7	11	10	10	14	6	4	2	3

Height at back	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Numbers of animals	2	0	3	6	8	8	12	11	12	6	11	3	5	—	—

Height at crupper	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
Numbers of animals	2	3	2	9	7	11	15	7	5	10	4	7	4	—	1	

In more than half of the mother ewes measured, the height at withers varied from 62 to 66 cm. but in 31 % of the animals it was less. The average for the ewes, which is 63.55, is lower by 3.3 than that of the rams.

The height at back must be measured with the greatest care because, in general, the animals hump their backs at the least pressure of the rule; and in that case it is necessary to wait until the position is again normal. 60 % of the sheep have a height at back of 61 to 66 cm. The average for the back of the ewes is then 62.37 cm., that is, 3 cm. less than that of the rams. In comparing the average height at withers, in relation to that at the back, it is observed that there is a slight slope of 1 cm. in the back of the ewes and of 2.3 cm. in the rams. On comparing the measurements at back and withers the different specimens it is found that the first may be at most 2 cm. larger and 4 cm. smaller than the second as will be seen below:

	Height at back in relation to height at withers						
	+ 2	+ 1	0	— 1	— 2	— 3	— 4
Percentages of animals	1.2	3.7	21.1	45.7	18.7	7.4	2.5

Thus animals having the back lower by 1 cm. are the most common. Those in which the two measurements are equal come next. Since a difference of 1 cm. more or less between height at back and height at withers indicates a slight tendency only to a convex or concave back, these two categories may be included with the zero difference category. 70 % of the animals show this normal or practically normal relation of height at back to height at withers; 29 % of the animals have a height at back of 2 cm. (or more) lower than that at withers and the back is concave; the back is more convex in 1 % of the animals. Some breeders think that the concavity of the back depends on the length of the trunk, which is easily explained from a mechanical point of view; in tact the longer the backbone, the more the tendency to become saddle-backed. The Karamans however, have not a very long body and there is no correlation between the length of the trunk and the concavity of the back, as is shown by the coefficient of correlation $r = 0.192 \pm 0.103$.

A concave back may be due to various causes; age in particular, because, with animals, the vital forces diminish, the tendons relax and the back tends thus to become saddle-shaped. The same thing happens if the young animals, having suffered hunger during the winter and especially if they are served too young: gestation fatigues the spine, the sinews sag and the back becomes saddle shaped. This defect cannot be corrected; it can be transmitted by weak rams, and if in-breeding takes place it may be diffused to a marked degree.

In the ewes, the average height at crupper: 62.97 cm., is 2.8 cm. less than that of the rams; 54 % of the ewes have a height at crupper varying from 61 to 66 cm. In calculating the difference between the height at crupper and that at withers, data regarding the line of the back is obtained. Below are indicated the differences noted and the percentages of animals concerned.

	Differences (in cm) between the height at crupper and height at withers							
	+ 3	+ 2	+ 1	0	— 1	— 2	— 3	— 4
Percentages of animals	2.5	8.7	13 7	21 0	29.9	12.2	7.4	5

The positive and negative differences of 1 cm. being minimum, the animals of the two categories may be included with those in which the height at crupper is equal to that at withers, so that 64 % of the animals examined had a height at withers equal to that at crupper; 11 % of the animals had a crupper height 2 cm. more than the withers and 25 % had a crupper height lower than the withers height. The tendency to have the crupper height lower is stronger than the tendency to have it higher. Below is a comparison between the crupper heights and the height at back.

	Differences (in cm) between the height at crupper and height at back								
	+ 4	+ 3	+ 2	+ 1	0	— 1	— 2	— 3	— 4
Percentages of animals . .	1.2	5.0	16 2	23.6	37.3	14.9	1.2	0	1.2

In assembling the animals which do not show in general any difference or which show differences of 1 cm. more or less, it is found that 76 % of the sheep which have the back and crupper practically of the same height; 22 % have a dorsal line mounting towards the crupper and in 2 % it descends slightly. But this last percentage lies within che limits of error.

On comparing the height at crupper to the length of trunk, these are equal in the Merinos bred for meat. With indigenous sheep on the contrary, the height at crupper exceeds the length of trunk. LINNENKOHL shows for the sheep of the Rhön a height at crupper exceeding the length of trunk by 3.17 cm. and 4.36 cm. But there are certainly individual differences very much greater. Below will be seen the data on the differences between the crupper height and the trunk length:—

	Differences (in cm) between the crupper height and trunk length														
	+ 11	+ 10	+ 9	+ 8	+ 7	+ 6	+ 5	+ 4	+ 3	+ 2	+ 1	0	— 1	— 2	— 3
Percentages of animals . . .	2.5	2.5	2.5	1.2	6.2	11.2	13.7	8.7	11.2	13.2	7.4	6.2	2.5	6.2	5

On grouping the categories + 1 cm. and — 1 cm. to the category 0 (crupper height = trunk length), one obtains 16 % of animals, while 11 % have a crupper height a few centimetres lower, and 73 % have one exceeding by 2 to 11 cm. the length of the trunk. The majority of animals (60 %) have a crupper height surpassing this length by 2 to 6 cm.

Table III gives absolute figures concerning the height at shoulder joint and height at elbow-joint.

TABLE III. — *Variations of height (in cm.) at shoulder and elbow-joint and percentages of animals corresponding.*

Height at shoulder joint, ...			36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Percentages of animals			1	0	5	9	6	7	14	9	9	8	8	7	3	1	
Height at elbow-joint , . . .	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Percentages of animals . . .	4	9	12	14	15	10	8	6	6	1	0	0	0	1	0	1	

In about 60 % of sheep, the height at shoulder joint is between 42 and 47 cm. and the extreme limits of variation are 36 and 50 cm. About 60 % of the sheep have a height at elbow-joint between 36 and 41 cm. and the limits of variation are 34.7 and 50 cm. These data and the averages (43.5 cm. for the height at shoulder joint; 38.37 cm. for the height at elbow-joint) show that the shoulder is higher than the elbow-joint. Below will be found data concerning the two measurements.

	Differences (in cm) between the height at shoulder and at elbow- joint						
	2	3	4	5	6	7	8
Percentages of animals . . .	2.5	16.1	21.0	22.2	17.2	14.2	6.2

Thus 60 % of animals have, between the height at shoulder joint and that at the elbow, a difference of 4 to 6 cm., on an average 5.06 cm. LINNENKOHL has found on studying the various flocks and in different years, a difference of 3,09 to 4.13 cm. in the sheep of the Rhön breed. The difference of the heights is thus greater in the Karamans, though the heights at withers may be 2 cm. more than that of the sheep of the Rhön breed, and the depth of the thorax may be the same in the two breeds. This larger difference shows that the angles of the shoulder region are less acute in the Karamans, which gives them an easier gait. Table IV gives the data concerning the height at shoulder joint and the height at elbow expressed in percentage of the height at withers:—

TABLE IV. — *Height at shoulder and at elbow-joints in percentage of the height at withers: variations of these heights and percentage of corresponding animals.*

First line: Heights at shoulder joint in percentage of heights at withers,
Second line: Percentages of animals:

58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
1.1	0	0	2.2	0	5.5	4.4	6.6	5.5	11.2	12.4	11.2	9,9	11.2	4.4	7.7	0	3.3	

First line: Depths of the shoulder in percentage of the depth of the withers,
Second line: Percentages of animals:

54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
1.1	2 2	0	5.5	13.5	19	20	9.9	8.8	6.6	5.5	1.1	3.3	2,2	

Table V relates to the measurements of the thorax (in cm.) and their variations.

TABLE V. — *Measurements of the thorax (in cm.) and their variations.*

Depths of thorax.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Numbers of animals , . . .	1	0	0	0	0	2	0	8	14	18	30	3	7	3	0	0	1	

Width of chest, ...	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Numbers of animals , ...	2	8	16	27	23	7	1	1	1	0	0	0	0	0	1	

Width of thorax behind elbow-joints, ...	13	14	15	16	17	18	19	20	21	22
Numbers of animals , ...	1	2	17	25	24	14	1	2	1	

Maximum curvature of sides	18	19	20	21	22	23	24	25	26	27	28	29	30
Numbers of animals	3	6	8	8	13	24	14	4	5	0	0	2·	

In the Karaman sheep the depth of the thorax averages 28.83 cm. The individual variations range between 19.1 and 36 cm. but 71.3 % of the animals examined had a depth of thorax from 27.1 to 30 cm.; in the case of 16 % this measurement was exceeded.

The relation between the depth of the thorax and height at withers is very important. On an average the depth of the thorax represents 46.05 % of the height at withers. This average holds for the German primitive sheep, for example those of the Rhön. The individual relative values go from 40.1 to 55 %, but 70 % of the animals have a depth of thorax representing 43.1 to 48 % of the height at the withers; 22 % have a depth of thorax still greater. There are a few sheep (only 3.4 %) in which the depth of the thorax represents 50 % or more of the height at withers. The average breadth of the thorax is 16.76 cm. and varies from 13.1 to 29 cm.; 75.8 % of sheep have a breadth of thorax ranging from 15.1 to 18 cm. and only 11.6 % exceed these dimensions.

On an average the chest breadth represents 26.39 % of the height at withers; it is observed also to be the average in the German indigenous breeds, as for example of the Rhön sheep. The variations are between 22.1 and 34 of the height at withers; but more than half of the animals (53 %) have a relative breadth of chest from 24 to 27 %; 35.6 % have a larger breadth and only 8 % have a breadth exceeding 30 % of the height at withers.

On calculating the breadth of the thorax in percentage of its depth individual differences are found, ranging between 49 and 74 and a general average of 58.45 %. About 2/3 of the animals (62.4 %) have a breadth of thorax ranging from 54 to 60 % of depth; 23.6 of the animals have a still greater breadth and 17 % have a breadth of thorax exceeding 60 % of depth. The dimensions of the thorax are similar to those found in the German indigenous sheep.

TABLE VI. — *Variations of the width between the haunches and that of the pelvis (in cm.)*

Widths between the haunches	13	14	15	16	17	18	19	20	21	22
Numbers of animals	1	2	17	25	24	14	1	2	1	

Breadths of pelvis	13	14	15	16	17	18	19	20	21	22	23	24	25
Numbers of animals	3	6	8	8	13	24	14	4	5	0	0	2	

On an average, the width between the haunches is 17.01 cm. and the extremes are 13.1 and 22 cm.; but in 72 % of animals examined, it ranges from 15.1 to 19 cm. and very rarely does it exceed 20 cm. On an average, breadth represents 27.35 % of the height at withers and the extremes are 23 and 34 %; but in the greater part of the animals, this breadth represents 26.1 to 30 % of the height at withers. On comparing the width between the haunches with that of the thorax, it is found that in 47 % of sheep measured, the first exceeds the second, and that in 53 %, the opposite is the case. On an average, the breadth between the haunches represents 101.82 % of the breadth of the thorax and the extremes are 86 and 116 %.

The breadth of the pelvis exceeds by about 2 cm. the breadth between the haunches; it is on an average 18.01 cm.; 58.6 % of the animals have a width of pelvis ranging between 17.1 and 20 cm. In the Karaman sheep, these two breadths are less than those of the German indigenous sheep of the same size. The relation between the breadth of the pelvis and the height at withers is on an average 28.52 % and varies between 23 and 39 %; in 40 % of the animals examined the breadth of the pelvis represents 27 to 30 % of the height at withers.

The following are the variations in length of the trunk and circumference of the tibia (in cm.):—

Lengths of the trunk	40	42	44	46	48	50	52	54	56	58	60	62	64	66
Numbers of animals	1	0	1	0	0	1	3	5	15	27	21	6	7	

Circumferences of the tibia	5	6	7	8	9
Numbers of animals	2	29	48	8	

On an average, the length of the trunk is 59.45 cm. Two animals, apparently underdeveloped, had a very short trunk, and as a result, the variations were considerable (from 40 to 66 cm.). About three-fourths of the animals examined (72.4 %) had a length of trunk ranging between 56 and 62 cm. and 15 % exceeded this measurement.

The length of the trunk is 93.47 % the height at withers. About half of the animals examined (47.5 %) have a length of trunk representing 90,1 to 96 of the height at withers. The length of trunk of 25 % of the animals is greater and in 15 % less. The extremes are 82 to 104 % of the height at withers, but in only 10 % of the animals the length of the trunk exceeds the height at withers.

The Karaman sheep are distinguishable for their leg strength as is shown by the circumference of the tibia, which is on an average 7.2 cm. In about 55 % of the animals examined, this circumference varies between 7 and 8 cm. and in 33 %, between 6 and 7 cm.

(d) *Head of the Karaman sheep.*

The head of the Karaman sheep is not large in relation to the size of the animal; it is somewhat sloping in the rams. The measurements of the head gave the values indicated in Table VII.

TABLE VII. — *Measurements of the head (in cm.) and their variations.*

Lengths of the head	17	18	19	20	21	22	23	24	25	26	27
Numbers of animals		1	0	0	2	17	19	29	18	0	1

Breadths of the head	8	9	10	11	12
Numbers of animals		1	0	42	44

Minimum breadths of the forehead	5	6	7	8	9
Numbers of animals		2	45	39	1

The average length of the head is 23.02 cm., the predominating measurements being between 23.1 and 24.0 cm.; but 75.8 % of the animals have a length of head between 22.1 and 25 cm. These absolute measurements and those relative to the height at withers show that the Karaman sheep do not have any great length of head. The average length of the head represents 36.7 % of the height at the withers, with a variation between 32.1 and 41; but in 35 % of the animals, the length of the head represents 34.1 to 40 % of the height at the withers. In comparison, in the sheep of the Rhön, the length of the head is equivalent to 40 % of the height at the withers.

On an average, the breadth of the head is 10.98 cm.; the values obtained were almost exclusively between 10.1 and 12 cm. If the breadth of the head is calculated in percentage of the height at withers, an average of 17.98 % is obtained, with the extremes 14.1 and 21 %; but 84 % of the animals have a breadth of head 17 to 20 % of the height at withers. The average value M = 48.33 % for the breadth of the head in relation to its length shows that the Karaman sheep have a rather broad head. The percentages vary between

39.1 and 58 %, but the relative lengths ranging from 45.1 and 50 % are the most general (63 % of the animals). In 17.3 % of the animals, the breadth of the head exceeds the half of the length. These proportions of the head, which is relatively broad rather than long, can be considered as a consequence of the unfavourable conditions in which these animals live.

The minimum breadth of the Karaman ewes' forehead is on an average 6.92 cm. and varies between 5.1 and 9 cm.; but in 97 % of the animals examined, it is from 6.1 to 8 cm. Compared to the height at the withers it is on an average 11.7 % and varies between 9.1 and 14; but in 74 % of the animals, it represents 11.1 to 13 % of the height at the withers. Relatively to the length of the head, the forehead is narrow; on an average, it represents 31.69 % of this length, as against 37 % in the sheep of the Rhön; 75 % of the animals have a minimum breadth of forehead which represents from 28 to 34 % of the length of the head; 23 % have a minimum breadth of the forehead representing less than 30 % of the said length. The extreme measurements are 24 and 38 % of the length of the head. The Karaman sheep have a broad rather than a long head, the forehead being very narrow.

Generally the ewes are without horns. According to Ihsan Abidin, only 1 to 2 % of the ewes have horns. These are either stumps or else scarcely developed, very compressed laterally and curved in the shape of a sickle. A large part of the rams are also without horns: according to Ihsan Abidin, about 80 to 90 %. The number of horned rams seems to vary from one region to another, and diminishes towards the East.

In the Karaman sheep, as in the Karakul sheep, the shape of the ear varies greatly. In the neighbourhood of Ankara and Koçhissar, chiefly animals with drooping ears are found, sometimes astonishingly narrow and folded laterally. This folding is also found in the small upright ears, closely resembling those of Angora goats. There are also sheep having upright ears, generally small, sometimes pointed, sometimes rhomboid in shape. The diminution of the ears may lead to their complete disappearance.

The measurements taken show the diversity of the formation of the ears. An average for the length of the ear of 13.18 cm. is found and for its breadth, 6.58 cm. Below are the different values obtained:—

Lengths of ear (cm.)	7	8	9	10	11	12	13	14	15	16
Numbers of animals	2	1	1	1	13	28	19	14	8	

Breadths of the ear (cm.)	3	4	5	6	7	8	9	10	11	12	13
Numbers of animals	1	1	11	52	21	0	0	0	0	1	

In 85 % of the animals examined, the length of the ear varies between 11 and 15 cm.; in only 6 % it was less and in 9 % it was more. In the majority (96.5 %), the length is from 5 to 8 cm.

As compared with the length, the breadth of the ear represents 34 to 76 %, the average being 52.4; 70 % of the sheep have a breadth of ear representing 46 to 54 % of its length; 46.6 % have a breadth of ear representing less than half the length.

The length of the ear varies greatly in relation to that of the head; it is 34 to 70 % of the latter the average being 57.8 %; only 12 % of the animals have the ears shorter than the half of the length of the head; but in 30 % the ears are more than 60 % of the length of the head.

(e) *Conformation of the tail of the Karaman sheep.*

In sheep having fat hindquarters, there is formed around the root of the tail, and all along its length, a large mass of fat surrounding the short part of the vertebral column which constitutes the tail. In fat-tailed sheep, and especially the Karamans, the fat layer is most marked underneath where the tail begins, although it emerges a little above, and it surrounds a part only of the caudal vertebrae. The conformation of this layer of fat differs in the different fat-tailed sheep breeds, so that THILENIUS has been able to use this characteristic to establish a classification of these breeds. In the Karamans, as in the Karakuls, the new-born lamb has already the fat tail distinctly developed; but this is filled with adipose tissue and is not, as in the Karakuls, a kind of bag of folded skin and empty.

The Karamans have the layer of fat commencing at the root of the tail or a little above; this occurs with the older animals, where it begins already in the region of the crupper. Laterally this layer may descend along the thighs. In young animals, on the contrary, it only starts at the beginning of the tail.

One may distinguish the main part of the fat layer, the middle part, and the tail end. The main part is egg-shaped and gradually increases in size towards the lower part; its sides may be a little flattened. At the extremity of the tail, there is in the middle a kind of groove, which can be followed all along the lower section. The fat tail reaches its greatest circumference where the middle part is attached to the main part.

The young animals have the median groove of the tail generally more marked, and the fat tail is longer in relation to the breadth, and less strong. The middle part is more curved than the main part, but sometimes this is also distinctly curved. This median part narrows towards the end of the tail, and recedes from the principal part as if tightened by a lace. Sometimes the passage of the principal part to the median part is less distinguishable; this happens when the fat tail is very well developed; a large layer of fat covers the median part and in its vicinity, the principal part, so that the two parts are less distinctly separated. Badly nourished animals and lambs have the median part only slightly developed.

The end of the tail rises from the median part. Well-nourished animals as a rule do not have a thin tail end, because the fat accumulates there and the tail finishes with a gradual narrowing at the median part. On the contrary, young or badly nourished animals always have a thin tail extremity, rising from the median part with a curvature in the form of an S, like the Karakul sheep. This curvature, which is found also in the fatter animals, is more or less decided. Sometimes this curvature moves first upwards and then to the left or the right; sometimes also it does not rise but turns immediately to the left. This curvature may turn first to the right and then to the left, but the direction to the left always predominates; thus, for 72 sheep having the tail curved to the left, there are only 18 having it curved to the right. This curvature may be more or less wide.

To sum up, on the subject of body conformation of the Karaman sheep, the following may be said: the height at withers is only slightly less than that of the primitive German sheep. The two breeds tend to be saddlebacked; about 1/3 of the animals have a decided concavity of the back. In the majority of cases, there was no difference between the height at crupper and that at withers; 1/4 of these even had the crupper lower than the withers. The Karaman sheep are essentially shorter than the German indigenous sheep. About 3/4 of the animals have a trunk shorter relatively to the height at withers. The differences between the height at the shoulder joint and that at the elbow-joint are greater than in the German indigenous sheep, and it is this which gives to the Karaman sheep their easy gait. In the Karaman sheep, the ratio between the depth of the thorax and height at withers, and the ratio between the breadth of the thorax and the height at withers are the same as those of the sheep of the Rhön, while the breadth of the pelvis and the width between the haunches are notably smaller. Probably as a result of the calcareous nature of the soil, the Karaman sheep have a great solidity, as is shown by the circumference of the tibia, which is very much greater than that of the German indigenous sheep. The head of the Karamans is relatively short, rather broad and more sloping in the forehead. The length and the breadth of the ears show in all flocks a considerable difference.

(*to be continued*)

Prof. Dr. W. Spöttel
Director of the Zootechnical Institute of Ankara (Turkey).
In collaboration with Privatdozent Dr. Kadri Belgimre.

MISCELLANEOUS INFORMATION:—

Cereals.

Studies in cereal growing in Uruguay and Argentina. — Professor A. Boerger, Director of the National Phytotechnical Institute of Plant Improvement «La Estanzuela» (Uruguay), has recently published two very interesting articles on this subject which are summarised below.

(1) *Influence of the «period of sowing» factor in cereal growing.* (La influencia del factor «Epoca de siembra» sobre el rendimiento, la calidad comercial y la calidad industrial de los nuevos trigos de la Estanzuela. — *Archiv fitotécnico del Uruguay,* Montevideo 1935, Vol. I, Fasc. 2, pp. 192-202).

The problem of the influence of the «period of sowing» factor on the yield and commercial and industrial quality of wheats has been studied for a considerable number of years at Estanzuela as being of fundamental importance for agriculture in Uruguay. The varieties of wheats which, from the point of view of the period of sowing, have a certain adaptability are definitely superior to those which have very precise requirements in that respect. The new wheats produced at Estanzuela allow a considerable margin of time between dates of sowing without having a marked adverse effect on the yield in grain. The straw decreases in relation to the delay in sowing.

(2) *Standardisation of wheats in Argentina.* (Argentiniens Weizenstandardisierung und die Qualitätszuchtung. *Der Züchter*, Berlin, 1936, Nr 3, p. 57). — A Law on the standardisation of cereals and flax in Argentina has come into force. Three types of wheat have been established: *Duro, semi-duro* and *blando*, The first represents the strong wheats, but does not correspond to the botanical variety *Triticum durum.* The varieties of wheat, cultivacion of which is officially recognised, are distributed between these three types according to their qualities. It is important to note that it is the baking value, the intrinsic quality of the variety, which serves as the first criterion for classification, based primarily on the quality of the gluten. In addition to these three qualitative types, three regional zones have been established which correspond to the three parts of the country served respectively by the ports of Rosario de Santa Fé (« Rosafé » zone), Buenos Aires and Bahia Blanca.

The official types of varieties of wheat (those only which may be exported) with the exception of the North American wheat Kanred and a few other unimportant varieties, have all been produced by the three large establishments for plant improvement in Argentina: that dependent on the Phytotechnical Section of the Ministry of Agriculture, that belonging to M. Enrique KLEIN, and that of the Society « La Prevision ».

Considering the fundamental importance of plant improvement for standardisation, legislation has been directed towards protecting and encouraging this work The marketing of new varieties is not permitted without special authorisation from the Ministry of Agriculture which is only given if the new variety is superior to varieties cultivated up to that time in respect of baking quality, resistance to disease, faculty of adaptation and yield. Comparative trials will be carried out in Argentina according to a uniform and detailed plan.

Forage Crops.

A COMPETITION WITH BONUSES FOR THE PRODUCTION OF SEEDS OF LEGUMINOUS FORAGE PLANTS, IN ITALY. — A competion, with bonuses, for producers of seeds of lucern, trefoil and sainfoin in 20 provinces of central and southern Italy has been opened for the year 1936 by the " Federazione dei Consorzi Agrari " under the auspices of the Ministry of Agriculture and Forests.

For *lucern*, crops sown at least 2 years before are admitted. Preference is given to. the oldest establised lucern field – the greatest area in relation to the total extent of the farm – uniformity, strength and density of vegetation – highest yield – absence of dodder.

For each province there are 4 bonuses value 1000 – 500 – 300 – 200 respectively. in addition to which the above mentioned " Federazione " engages to pay the producers a bonus of 1 lira per kilo of seed produced up to the amount of 400 kg per producer.

The " Federazione " reserves the right to acquire the whole or a part of the produce of the competitors by payment of 20 centesimi per kilo over the market price current at the time when taken over.

By these various means, the " Federazione " proposes to eliminate bad seed from the market as soon as possible by giving the farmers all possible guarantees as to the origin of the seeds purchased, which at present is no longer easy, and chiefly in respect of mixtures which unfortunately are found in circulation and are not easily identified.

Horticulture.

HORTICULTURAL SOCIETY OF SIAM. — Siam being both a horticultural and agricultural country, the said Society has been established with a view to assisting horticulture.

The Committee of this Society is extremely anxious to enter into relations and exchange information with all Horticultural Societies, Departments of Agriculture, Agricultural Experiment Stations and Botanical Gardens throughout the world, which have the same objects in view.

For this purpose, the Committee wishes to exchange reports, circulars, bulletins, periodicals, pamphlets, regulations, programmes, catalogues, seeds and plants with all institutions and commercial undertakings engaged in horticulture.

The Horticultural Society of Siam publishes a fortnightly magazine entitled " Rujakarm " (Horticulture), which will be sent to any business house or institution wishing to make exchanges.

For all information, apply to the Secretary of the Society: C. NARANGAJAVANA, Rosa House, *Bangkok*, Siam.

Animal Husbandry.

FILMS ON FRENCH STOCK-BREEDING. -- The French National Committee of Stock-breeding (C. N. E.) has had a certain number of films made with a view to providing a complete visual documentation of French breeds of domestic animals. These films have been made in various regions with the valuable assistance of the Agricultural Services and the managers of large stock farms. A very complete silent film has been made of each breed

Thus, in respect of breeds of *horses*, films have been made of Ardennais, Boulonnais, Percheron, Breton, Norman, Charolais, Anglo-Arab of Limousin, Anglo-Arab of the South-West. There is also a film of the Poitou ass.

With regard to breeds of *cattle*, there are films of Norman, Charolais, Limousin, Breton, Maine-Anjou, Montbeliarde breeds, spotted breeds of the East, Flemish, Parthenais and Salers breeds

For breeds of *sheep* there are films of the Merinos of Rambouillet, of Champagne, of Soisson and Chatillon, also breeds of the Ile de France, la Manche, Charmoise and Berrichonne.

In respect of breeds of *pigs*, there are 2 films, one for the Bayeux breed and the other for the Craonnaise breed.

There are also a certain number of films of small live-stock.

The projection of the silent films lasts from 5 to 18 minutes. In addition there are a few sound and talking films which cover, respectively, the whole of horse, cattle, sheep and pig breeding.

These films, which constitute an excellent means of instruction and popularisation, are lent free of charge by the National Committee of Stock-breeding, 12 Rue de Milan, Paris (IX$^{\text{ème}}$).

Forestry.

ACTIVITY OF THE ITALIAN FORESTRY MILITIA IN 1935. -- A very interesting report has been received on work of the Forest Militia in the restoration of mountain land in Italy.

During 1935, 13 168 hectares of denuded land have been planted with trees, an area which has never been attained up to the present, and integral re-afforestation has been carried out over an area of 6 929 hectares. The restoration of mountain land extends over 1 310 zones, in 88 provinces and is executed according to schemes planned by the Forestry Militia. Afforestation and re-afforestation work cluded the planting of 67 million plants and the sowing of 700 000 kg. of seeds of forest trees.

For the control of torrents, dams and other works in masonry have been constructed to a total of 343 000 m³.

In addition, 611 km. of forest roads have been made and another 541 km. have been improved.

A sum of 44 million lire has been spent on the above mentioned works.

The improvement of mountain pastures, which may be considered as completing these works, has received attention in proportion to its importance, as the State has given 2 million lire as a grant to owners (private and institutions) for restoring pasture land.

The action of the Forestry Militia has developed also: in the complex field of economic protection of 4 million hectares of land belonging to communes and institutions – in the management of the " Azienda di Stato " for national forests, the balance sheet for the year closing with a net gain of 5 million lire, in the application, in course in the majority of provinces, of the regime of restriction (" vincolo forestale ") of a hydro-geological order - in the regular administration of the services of the Forestry Police.

During the 10 years of its existence, the Forestry Militia has utilised 500 million plants and 4 200 000 kg. of seeds of forest trees for the restoration and beautifying of the mountains and with a view to increasing home production of wood.

BOOK NOTICES *

Russell, Sir E John, *Boden und Pflanze*, Zweite Auflage, nach der 6 englischen Auflage bearbeitet von Dr. K. W. **Müller** (Zurich), mit einem Vorwort von Prof G. **Wiegner** (Zurich), 446 p., 60 fig. und 123 Tabellen. Dresden und Leipzig 1936, Verlag von Theodor Steinkopff.

Under this simple title, the well known Director of the Rothamsted Experiment Station and ex- President of the International Association of Soil Science, has assembled a vast documentation from all over the world on soil and its relations to the cultivation of plants. The original book, in English, " *Soil Conditions and Plant Growth* ", the 1st edition of which (1912) contained only 168 pages, exceeds 600 pages in the 6th edition, the present volume representing the German translation by Dr. K. W. Muller (2nd edition). This shows clearly the development in the subject treated and the urgent need, satisfied in this book, to group and synthetise, for the use of the reader, the immense amount of material which has accumulated. Professor **Wiegner**, who contributes the Preface, has had the happy idea to suggest this 2nd edition of the German translation, which allows German readers to study easily the important questions which are treated by the author in an exceptionally masterly manner.

N. v. G.

Under this heading appear short synopses of books received for review.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

Cambridge University Agricultural Society Magazine 1936. Cambridge, W. Heffer, [1936]. 68 p.

Handbook voor cultuur-on handels-ondernemingen in Nederlandsch-Indië 1936. 48, Jaargang. Amsterdam, de Bussy, 1935. 1549. p. [Yearbook of plantations and commercial enterprises in the Netherlands Indies].

Highland and agricultural society of Scotland. Transactions 1936. 5th Series. Vol. 48. Edinburgh, W. Blackwood, 1936.

Marescalchi, A. Scritti agrari [1935-1936]. Casale Monferrato, Fratelli Marescalchi, 1936. VIII, 249 p.

Ostpreussische Landgesellschaft m. b. H. Königsberg i. Pr. Bericht 1916-18, 1918-19-1922-23, 1924-1928, 1932, 1934. Königsberg i. Pr., Ostpreussische Druckerei u. Verlagsanstalt Aktiengesellschaft. 1919, 1929, 1933, 1935, 13 vols.

General Agronomy

Böhnert, E. Die Abhängigkeit unserer gärtnerischen Kulturpflanzen von der Reaktion der Böden und Kulturerden. Stuttgart, E. Ulmer, [1935]. 71 p. (Grundlagen und Fortschritte im Garten- und Weinbau. Hrsg. C. F. Rudloff. Hft. 14).

Corbet, A. S Biological processes in tropical soils with special reference to Malaysia. Cambridge, W. Heffer, [1935]. XIV, 156 p.

Moller, J. Studier over ionbytningsprocessen med saerligt hendblik paa agrikulturkemien. København, H. Hagerup, 1935. 141. p. (København (Danmarks tekniske hojskole). Afhandl).
[Studies on the processus of ion exchange with particular reference to agricultural chemistry].

Plant Protection.

Bessey, E. A. A text-book of mycology. Philadelphia, P. Blakiston [1935]. XV, 495 p.

Peeters, G. Maladies et ennemis des plantes horticoles. Louvain, J. Peeters, 1935. 427 p.

Smith, K. M. Plant viruses. London, Methuen, [1935]. IX, 107 p. (Methuen's monographs on biological subjects.

Tropical and Subtropical Crops.

British cotton growing association, 31st Annual report 1935. [Manchester, 1936]. 63 p. (N. 130. April, 1936).

International society of sugar cane technologists. Proceedings. 5th Congress. Brisbane, 27th August to 3rd Sept. 1935. [Brisbane, D. Whyte, 1936]. 887 p.

Horticulture.

Cox, E. H. M. A history of gardening in Scotland. London, Chatto & Windus, 1935. XVI, 228 p.

Folloni, A. Il metodo Re di potatura del pesco. Torino, Paravia, [1935]. 57 p. (Biblioteca agricola « Paravia »).

Gayan, M. M. Horticultura general y especial. [Madrid], Espasa-Calpe, [1935]. 350 p. (Biblioteca agrícola española. Tratado general nº 6, serie 6ª: Cultivos herbaceos).

Saathoff, J. Der eigene Garten. Anlage, Bepflanzung und Pflege. Berlin, P. Parey, [1936]. VIII, 256 p.

Wagner, O. Der Walnussbaum und der Haselnussstrauch. Anleitung für fachgemässe und vermehrte Anpflanzung. Berlin, P. Parey, 1935. 62 p. (Gärtnerische Lehrhefte, Hft. 47).

Forestry.

[United States]. Forest service. Library. An annotated bibliography. Selective logging in the United States. Washington, 1935. 41 p.

[United States]. Forest service. Library. Forestry. Some books and bulletins in English. A bibliography. Revised edition. Washington, 1935. 26 p.

[United States]. Forest sereice Library. Tree rings. A bibliography. Washington, 1935. 7 p.

[United States]. Forest service. Library. Precipitation and climate particularly as they affect the Western States. Washington, 1935. 16 p.

Animal Husbandry.

British goat society's year book for 1936. [London, Headley, 1936]. 179 p.

Herd improvement register year book of the Holstein-Friesian association of America. v. 7. [Waukesha, Davis Green Corporation, 1936], 305 p.

Hergueta N. L. La cría del cerdo. Profilaxis, alojamiento, razas, alimentación, cría, recría y cebo, labor social. Madrid, Impr. Sáez, 1935. 266 p. (Pequeña biblioteca de ganadería e industrias pecuarias. Dirigida y publicada por L. Hergueta Navas, nº 2).

Hergueta, N. L. Gallinocultura práctica. 2ª ed. corregida e aumentata [Madrid, Impr. Sáez],1935. 112 p. (Pequeña biblioteca de ganaderia e industrias pecuarias. Dirigida y publicada por L. Hergueta Navas, nº 1).

Nicolescu, L. Producţia creşterea şi ingrijirea calului. Bucureşti, Institutul de arte grafice « E. Marvan », [1935]. 144 p. (Cunoştinţe practice pentru agricultori. Zootehnie, nº 14). (Unionea Camerilor de agricultură). [Production, breeding and care of horses].

Agricultural Industries.

British dairy farmers' association. Journal. Vol. 48. London, 1936. 428 p.

Damiani, M. Per l'olio d'oliva. Bari, Romano, 1935. 102 p.

Gallay, R. Le lait. Connaissance de la mamelle et du lait. Technique et économie laitières. Manuel à l'usage des écoles d'agriculture et des producteurs de lait. Publié par l'Association suisse des professeurs d'agriculture. Lausanne, Payot, 1935. 206 p.

Harvey, W. C. and H. Hill. Milk production and control. London, H. K. Lewis,, 1936. VIII, 555 p.

International association of dairy and milk inspectors. 24th Annual report Milwaukee, Wis. 1935 [Washington D. C., W. F. Roberts], 1936. 302 p.

Meierienes aarbok 1935. 4. de. Utgave. Utgitt av Meieribestyrernes landslag. Trondheim, C. Sarheim, .1935. 453. p.

Various.

Congrès international du froid. Actes du 6ème Congrès international du froid. Buenos Aires, 24 août-15 septembre 1932. Buenos Aires, Impr. du Ministère de l'agriculture, 1935-1936. 7 vols.

Frey-Wyssling, A. Die Stoffausscheidung der höheren Pflanzen. Berlin, J. Springer 1935. XII, 378 p. (Monographien aus dem Gesamtgebiet der Physiologie der Pflanzen und der Tiere, hrsg. von M. Gildemeister, R. Goldschmidt. 32. Bd.).

Kanter, H. Der Gran Chaco und seine Randgebiete. Hamburg, Friederichsen, de Gruyter & Co., 1936. XII, 376 p. (Hansische Universität. Abhandlungen aus dem Gebiet der Auslandskunde. Bd. 43, Reihe C. Naturwissenschaften. Bd. 13).

Association of economic biologists, Coimbators. Proceedings v. 3. 1936. [Palghat, The Scholar Press], 1936. 61 p.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

SOYA: SELECTION, CLASSIFICATION OF VARIETIES, VARIETIES CULTIVATED IN VARIOUS COUNTRIES

(*Part* 4). *

C. — ASIA

IV. — VARIETIES CULTIVATED IN VARIOUS COUNTRIES (*concluded*).

1. — CEYLON.

The various Experiment Stations have made trials in soya cultivation in several parts of the island. The results not having been satisfactory, no further attempts have been made to introduce this crop.

2. — CHINA AND MANCHURIA.

Soya has been grown in China for more than 3000 years. It is not possible to ascertain the origin of this cultivation in Manchuria. The principal centres of soya cultivation are in the northern part of China: provinces of Shan Tung) and in Manchuria (provinces of Hu Peh, Kiangsu and Ho Nan). Manchuria exports the greatest quantity of soya. Soya is found almost everywhere, it is grown on about ¼th of the whole of the sown land. Certain regions, however, are better known for production, these are: in the South the province of Mukden and in the North, the valley of the Sungari. The most important areas of cultivation are, in particular, the following river valleys in China: Lis-ho, Sun-hoa-chang and Non-chang. It is difficult to indicate for this country what varieties are cultivated as the native varieties have not yet been accurately classified. It may be said, however, that there are at present 500 varieties. Among cultivated varieties mention should be nade chiefly of those with round yellow seeds which are the best for oil oduction, and those with long green seeds, very much smaller, which are ferred as a food stuff. The oil content of the seeds varies between 14 22 %. The albumin content lies between 31 and 41 %. Soya with yellow seeds appears to be the most suitable for non-specialised cultivation and may be utilised for both oil production and alimentation. These seeds contain on an average, 19.5 % oil and 37.5 % albumin.

---

* t[illegible] 1st, 2nd and 3rd parts of this article appeared respectively in this *Bulletin*, No. 4, 5, May, No. 6 June 1936,

ngl.

In respect of introduced varieties, a few have been introduced from Corea, but their production is small and they are not extensively grown.

Table XXVI shows the content in fat and protein of the principal soya varieties cultivated in the different parts of Manchuria, also of a few varieties bred by the Experiment Station of Kung-chu-ling (belonging to the Railway Company of Southern Manchuria).

TABLE XXVI. — *Contents in fat and protein of various varieties of soya bean in Manchuria.*

Varieties	Water	Fat	Protein
Kung-Chu-Ling Pai Mei	8 55 %	18.66 %	45.93 %
Su Li Huang	8 13	20.66	43 02
Pai Hoa Tso Tse	8 32	19.36	46 13
Ta Li Huang	8.81	17.13	46 70
Tieh Chia Tou Tse	8 23	20 47	40 05
Chu Yen Tou Erh	9.34	17.52	46 17

The oil and protein contents of Manchurian soya, according to varieties, show variations of more than 6 and 7 % respectively. Generally speaking, it may be said that the yellow soy beans are the richest in protein and chiefly in fat, then come the green soy beans, and finally, the black soy beans It is interesting to note that Manchurian soy beans have an oil and protein content higher than those grown in any other coutry.

The chief research centres in cultivation and improvement in China and Manchuria are the following: Higher Agricultural Schools of Nanking and Hopeh.

Experiment Station Kun-chu-ling, belonging to the Railway Company of Southern Manchuria. — Society of Economic Research (same Company) — Agricultural Bureau (same Company) — Central Experiment Station (same Company) — Agricultural Bureau, Bureau of Affairs, and Agricultural Experiment Station of Ko-shan, both belonging to the Manchurian Government.

3. — FEDERATED MALAY STATES.

The area devoted to soya growing is very small, is entirely in the hands of the Chinese and is situated in the most isolated districts.

Experiments in acclimatisation have been carried out from 1926 to 193 by the Department of Agriculture with various varieties introduced from Burm Siam, the United States, Japan and the Philippine Islands, also with a Chinese type. Good lines have been bred from the local type, thoug highest yields and the best lines have been obtained by breeding fr al-variety introduced from Siam.

ile.

High yields have only been obtained by intensive cultivation, and the cultivation of local soya cannot compete with that of more remunerative leguminous plants.

4. — INDIA.

4-*a*. — Punjab.

Soya is practically unknown as a crop though, in the course of the last few years, a certain number of farmers have given it a trial with the result that it has been introduced into the Punjab on a very small scale. It does not appear that it will ever be of any importance here. No work of experimentation or research has yet been carried out with the exception of a few variety trials made by certain experiment farms during the last few years. The Botanical Experiment Station of Lyallpur and the Sub-Station of Ludhiana have also carried out a certain amount of botanical research. There are no native varieties; the two varieties recently introduced are " Yellow " and "Chocolate ".

Owing to the extremes of climatic conditions in the greater part of the Punjab, only the varieties resistant to drought, cold and diseases can be successfully grown.

On account of the small importance of this crop in the Punjab, it is not possible to give any indications in respect of choice of soil, crop rotation, manure, yields, etc., though the few trials carried out have shown that the plant appears to be more successful in rich, muddy soils; it is not satisfactory in the hot, dry plains; the application of manure increases considerably the harvest. Cultivation trials, however, show that artificial fertilisers, such as sodium nitrate, superphosphates, potassium sulphate, have hardly any effect on the plant. The most appropriate time for sowing in the conditions of the Province is still to be determined.

4-*b*. — Bihar and Orissa.

Soya is cultivated on only a very small scale on the plains of Bihar and Orissa, though trials carried out since 1918 have shown that it might be satisfactory on the plateau of Chota Nagpur. This crop has not yet been adopted by farmers in the Province, though efforts have been made to encourage its diffusion; hence it is grown only in the Government farms. There is only one native variety: Mirjanhat. The variety introduced is Black Mottled Java which grows well in the alluvial soils of the Indus-Ganges plain. Crop rotation as practised at the Experiment Farm of Kanke is as follows: 1st year: maize for ensilage; 2nd year: leguminous forage plants for pasture; 3rd year: cereal plants; 4th year: leguminous forage plants for green manure. Soya therefore, enters the rotation between the 2nd and 4th years. The seed is broadcasted when forage is required and sown in rows 2 ½ feet apart when grown for seed. There is no special method of cultivation. When grown for green manure or pasture no manure is given. Black Mottled Java is a early variety, ready for harvesting at the end of August. The variety Mirjanhat is [illegible] and cannot be cut before November. The yields are about 100 *maunds* green forage and 12 *maunds* of seed per acre.

4-*c*. — Burma.

The soya plant is very well known, but is not cultivated on a large scale. The variety grown in the plains of Pe-Ngapi tend to be forked and to resemble the wild form. The varieties cultivated in the hill regions (Shan States) have an erect growth habit and resemble the types grown in China. Soya is grown in Burma only for local consumption.

The Experiment Station of Mandalay carried out work in pure line breeding from 1915-to 1919 and from 1924 to 1928 and similar work is now in progress at the Agricultural Station of Tatkon. Samples of the varieties Pe-kyat-pyin, Behrum and Santonauk, analysed at the Imperial Institute, London, had the following characteristics: these soyas resemble commercial soyas in respect of composition; they have a very high protein content; Pe-kyat-pyin and Santonauk contain less oil than the Chinese and Japanese varieties; Bechrum is the variety resembling most closely the standard commercial types.

Regions of cultivation. — This plant is grown on the river banks and islands after the subsidence of the floods, also on sandy up-land soils and in the hill regions and sometimes in rice nurseries after the young rice plants have been removed. Trials in introducing foreign varieties have not been successful. There are three principal native varieties, namely:

(1) A variety with yellow seed shading to brown in the region of the hilum, round or oval. The unripe seed is greenish. This variety includes 3 sub-varieties: one large, one medium and one small.

(2) A variety with greenish yellow seeds shading to brown in the region of the hilum. Green seeds are generally unripe.

(3) A variety with dark brown or olive brown seeds shading to black in the region of the hilum.

Cultivation. — In Burma no crop rotation exists in which soya is included though it is sometimes grown in biennial rotation instead of Mat-pe (*Phaseolus Mungo*) or Pe-yin (*Phaseolus calcaratus* Roxb.). The seed is generally sown broadcast in October when soya is the main crop. In the hill districts the seed is sown broadcast from July to December when climatic conditions are favourable. After sowing, very little attention is given to the crop. When the young plants are 10 to 15 cm. high the soil is hoed in two directions to remove weeds and clear the crop. On inundated land no manure is applied; on other land farm manure is sometimes used. The harvest is cut with the sickle 90 to 100 days after sowing, the seed is trodden out by cattle, the yields are from 200 to 670 lbs. per acre.

East-Central region of Burma.

This region includes, *inter alia*, the Southern Shan States where soya is extensively grown. The area cultivated in 1935 amounted to about 50 000 acres.

Varieties. — There are two distinct varieties; an early variety called H nang and a late variety called Hto-nao. Both varieties have small seeds, ye). and brown. Varieties from China, Manchuria and India are now being al-duced.

ile.

Cultivation. — No precise crop rotation is practised and manure is rarely used. The entire plant is harvested and threshed immediately afterwards. The average yield in the Southern Shan States is about 1000 lbs. per acre. In the plain of Burma it is 850 lbs.

Circle of Myingyam (*Province of Burma*).

The cultivation of soya is of no importance and no work of investigation has been undertaken up to the present. Soya is grown chiefly on the banks of the Irrawaddy and Chindwin rivers. The only cultivated variety is a native one, greenish yellow in colour. It occupies no definite place in crop rotation. The seed is sown broadcast on land which has been dug and sometimes harrowed. The yields are about 200 to 250 lbs of seed per acre and 1500 to 2000 of forage.

4-*d.* — Berar

Studies on soya cultivation were undertaken in 1927 and are still in the experimental stage. These investigations are made by the Government Farm of Nagpur. Soya is grown in certain places in the districts of Nagpur and Akola. The areas cultivated are not known. There are no native varieties. The foreign varieties are: Nos. 49-53-57-59. In respect of forage production, the plant must be early and prolific to compete with other leguminous crops. Soya does not yet enter into crop rotation, but it might do well in a rotation including cotton. The yields obtained are about 1200 lbs. of forage and 500 lbs. of seed per acre.

4-*e.* — Presidency of Madras.

Soya growing has been studied at the Agricultural Research Stations of Adurai, Maruteru, Hagari and Nandyal, Samalkota.

α) *Research work at Adurai.* — Started in 1932. Cultivation is still in the experimental stage and has not developed greatly on account of the fact that the market is not organised though numerous varieties grow extremely well in the soils of the Tanjore delta. Studies at present are limited to variety trials. There are no native varieties, but 25 varieties have been introduced 17 of which have flourished. The growth period is from 3 to 6 months. The land utilised at the Adurai Station is rice land formed of alluvial deposits from the river Cauvery. Soya is now being tried in crop rotation with rice and it is proposed also to cultivate early soyas as a first crop from June to September in rice land before planting rice in September-October. The seed is sown broadcast on land which has been dug and is afterwards turned under either with the harrow or a light wooden plough. From 10 to 20 lbs of seed is sown per acre. Harvesting takes place when the plants have begun to lose their leaves and the ripe pods are yellow or yellowish brown. The yields are from 1500 to [illegible]00 lbs. per acre.

(β) *Research work at Maruteru.* — Soya cultivation was introduced in [illegible] As far as is known there are no native varieties. The varieties intro[illegible] are: Burma, Pe-Ngapi, Kachin, Behrum. For planting small pointed stakes are used when the soil is sufficiently damp, the holes are spaced 20 to 26 cm apart and two seeds are placed in each hole. In this way rows of soya are planted in the rice fields. The plants are uprooted when mature and then dried and the pods are stripped off by hand. The yields in clean seed of the varieties Behrum (Kachin) and Pe-Ngapi (Burmese) are 1314 and 430 lbs per acre respectively.

(γ) *Research work at Hagari and Nandyal.* — Soya growing was introduced into this region in 1932-1933. Cultivation trials carried out by the Research Station were not very successful. There are no native varieties, but efforts have been made to introduce the varieties Kachin, Burma, Pe-Ngapi and Laredo. Soya, however, a not important among local crops. It is sown in rows and may be utilised in intercalary cultivation with Danthulu and Guntaka.

(δ) *Research work at Samalkota.* — Soya was introduced at the Samalkota Experiment Station in 1932. 5 American and 2 Burmese varieties are being tested. The best results have been obtained with the varieties Pe-Ngapi and Behrum (Kachin). Up to 1955, this crop hardly existed outside the limits of the experimental farm. In 1936 a few seeds was distributed for trial in the district. There are no native varieties. It appears that early seed should be sown in June in moderately heavy soils, sufficiently dry and well dug. In damp soils sowing takes place in November after the rice harvest. The seed is sown broadcast in damp soils and in rows in dry soils. In damp soils no special manure is applied. In dry soils farm manure is applied if available. In rich irrigable soils, soya may yield from 1000 to 1500 lbs. per acre.

4-*l*. — Presindecy of Bombay.

This leguminous plant was introduced for the first time in 1932 by the Stock-breeding Expert, but for the purpose of replacing animal proteins in poultry feeds. Soya growing is now on trial on about 50 acres in the districts of Poona, Nagar, Satara, Sholapur and Ratnagiri with a view to determining the yields in these localities. Trials are made also at the Northcote Stock-breeding Farm at Charodi (district of Ahmadabad), the Poultry-breeding Farm of Kirkee (district of Poona) and the Government Stock-breeding Farm of Bankapur (district of Dharwar). Trials are made with 6 varieties bought from Calcutta: green with large seeds, green with small seeds, yellow with large seeds, yellow with small seeds, brown with large seeds and brown with small seeds. The varieties Large Yellow and Mammoth Yellow are also being tested. The variety Large Yellow is bushy and yields good forage for cattle and poultry, the yield in seed is also high. The variety Mammoth Yellow yields no forage, but produces large quantities of seed.

Experimental work has been carried out in deep, black cotton soils and in sandy-clay with good results. In the Deccan soya is cultivated in the lightest soils where it is possible to irrigate twice. In the region of Konkar it is grown in poor soils called " Varkas " and enters into the same crop r tation as Nachani. (*Eleusina coracana*). It is also grown in rotation with m and *jowar*, the same soil being cropped continuously in this way for 3 y Owing to its leguminous character soya may replace, in general cultiv such plants as Mug (*Phaseolus Mungo*) and Matki (*Phaseolus aconitifolius*). It may be grown alone or associated with jowar. The variety Large Yellow occupies the soil for 3 to 3 ½ months, the variety Mammoth Yellow, for 4 months. According to climate and localities, the yields vary from 105 to 960 lbs. per acre.

4-*g*. — Bengal and neighbouring Indian States.

It is believed that soya was introduced by the Chinese in remote times. It does not receive any particular attention, the only investigations known have been carried out at Sabour. At the Government Farm at Kalimpong variety trials have been made with 9 or 10 distinct varieties only the majority of which have now disappeared.

The principal regions of cultivation are: Nepal, Bhutan, Sikkim and the north of Bengal (district of Darjeeling). In the Darjeeling district, as in the three independent States mentioned above, the areas cultivated amount to about 20 000 acres. The following are the 5 principal varieties: small pale yellow, medium white, large brown, small brown, green. These have all been introduced at various times. The varieties with large seeds are always preferred. The most suitable soils are light sandy-clay soils, deeply tilled. The seed is sown often after the maize harvest. Soya is also grown with rice in the hill regions. It is sown broadcast or dibbled in. In dry land cultivation the soil is hoed to remove weeds and, as soya comes second in crop rotation, no manure is applied. The entire plant is cut and threshed when the leaves and pods are dry.

4-*h*. — Assam.

Soya was introduced in 1913, but so far no research work has been effected. It is grown on about 5 acres at the Government Experiment Farm at Upper Shillong, near Shillong, also in the districts of Khasi and Jaintia Hills, but no information is available on the areas cultivated.

4-*i*. — North West Frontier Province.

None of the trials carried out for introducing soya into this province have been successful. The crop is invariably attacked by *Rhizoctonia Solani* Kuhn and no efficacious remedy has been found.

4-*j*. — United Provinces.

Soya is hardly cultivated at all and is confined to a few districts situated at the foot of the mountains. It is found in the Almora hill regions up to an altitude of 5 500 feet. It is a crop that should be grown in the rainy season in very poor soils. The forage, harvested in November-December before complete maturity, is excellent for all farm animals. The seed is sown at a depth of 3 to 4 cm. The growth of the introduced soya is generally less good than that of the small black seeded plants called Japanese haricot beans.

5. — NETHERLANDS INDIES.

In Java, the black varieties of soya are predominant; those with light coloured seeds are of importance only in a few districts, namely Tegal, Brebes, Demak, Koedoes, Loemadjang. The majority of native varieties have black seeds and mature, on an average, in 80 to 90 days.

It appears that the predominance of black seeded varieties is due to the nature of the soil and extent of rainfall; the varieties with light coloured seed require more water and therefore are generally found in regions with considerable rainfall, or in irrigated zones. In addition, trade is an important factor in the distribution of varieties.

Since 1915 seeds of Buitenzorg have been selected in the Selection Garden, and native varieties have been improved. Their distribution throughout the island, from West to East, is as follows:

(a) *Regency of Pekalongan.* — On the heavy clay soils of the Tegal-Brebes district the varieties with pale coloured seeds, Krawe and Idjo (growth period 90 to 110 days) are grown, Djepoen (growth period 85 to 90 days), Poetik (growth period. 80 to 90 days). The variety Krawe is more extensively grown than the others, as it is resistant to diseases and pests and has large seeds. Varieties Djepoen and Poetik are relatively resistant to drought All these, which are early, are harvested at the end of only 70 to 75 days, when they are completely mature, in the region of Djengkellok, in order to avoid damage by rats. Their condition requires subsequent drying

On the less heavy lateritic soils of Pekalongan, Wiradessa and Kedoengwoeni black seeded varieties are almost exclusively grown The yields obtained vary from 4 to 11 quintals per hectare

(b) *Regency of Banojemas* — Only black-seeded varieties are grown.

(c) *Regency of Zuid-Bagelen.* — Only black seeded varieties are grown.

(d) *Regency of Salatiga.* — Black seeded varieties are cultivated.

(e) *Regencies of Demak and Koedoes.* — Varieties with light coloured seeds are grown.

(f) *Regencies of Pati, Grobogan and Blora.* — The variety most widespread is an early variety with black seeds and growth period of 80 days, called Mentik.

(g) *Government of Djokjakarta* — All the native varieties have black seeds.

(h) *Government of Soerakarta.* — All the varieties have black seeds. They are generally early (growth period 70 to 80 days) and more seldom late (growth period 90 to 100 days).

(i) *Regencies of Madioen and Ponorogo.* — All the varieties have black seeds and resemble each other so closely that it may be said there is only one variety called Ireng at Ponorogo and Djawa at Madioen In these Regencies attempts are being made to introduce the varieties with white seeds: Nos. 17—28—29. The characteristics will be given below. These varieties, however, are not greatly appreciated by the Chinese merchants on account of the smallness of the seeds.

(j) *Regencies of Ngandjoek and Kediri.* — All the varieties are early (growth period 80 to 85 days) and have black seeds.

The improved variety with white seeds No. 29 has been introduced recently into the irrigated district of Waroed jajeng-Kertosono. It has a yield greatly superior to that of native varieties: 9 to 17 quintals per hectare against a maximum of 10 quintals for the other varieties. The improved variety with black seeds, No. 27 has also been introduced. The yield is very high and it matures in 90 to 95 days.

(k) *Regencies of Djombang, Modjokerto and Sidoardjo.* — Varieties with both black and white seeds are found. The improved variety No. 27 with black seeds is the most extensively grown.

(l) *Regencies of Bangil and Pasoeroean.* — Varieties with black seeds are in the major[illegible].

(m) *Regency of Loemadjang.* — The greater part of native varieties have white sal-

(n) *Regency of Djember.* — Varieties with both black and white seeds are found.

le.

Improvement trials with native varieties not having been satisfactory, trials were carried out with varieties imported from other countries and particularly from Japan, Formosa, and the United States. The results were not encouraging in respect of varieties from Manchuria, Japan and the United States. On the other hand, the Formosa varieties have been successful, and it is from these varieties that the selected varieties No. 27 with black seeds, No. 29 with white seeds were obtained. As has already been said, these varieties are now grown throughout the whole island.

In 1928, the Selection Station again undertook breeding work with native varieties. With the help of experts, 82 samples of soya seed have been collected from various centres of cultivation; 52 being black, 38 white and 2 green. Comparative trials in cultivating these varieties are being carried out at present at Buitenzorg.

Table XXVII indicates the characteristics of the 5 principal improved varieties, bred from varieties introduced from Formosa.

In the course of trials all the selected varieties have proved to be superior to the native varieties. Varieties No. 27 and No. 29 are superior to No. 16 and No. 17. The variety No. 27 is the best of all.

In other parts of the Netherlands Indies, native varieties with black or white seeds and either early or late are generally grown: but in certain districts selected varieties are being increasingly cultivated, No. 27 in particular. It gives a yield higher by 3 to 5 quintals than those of native varieties, unfortunately it is not early (growth period: 90 to 95 days). The cultivation of Nos.17-28-29 is also increasing, chiefly No. 29 These varieties give high yields, but the seeds are considered too small.

6. — INDO-CHINA.

Soya growing has been practiced in Indo-China from a very long period. The date of introduction is unknown. Though fairly widespread, this crop rarely occupies large areas and is grown by small farmers.

Principal regions of cultivation.

Tonkin. — Soya growing extends over the whole delta and a part of the mountain region, particularly in the province of Langson. The area occupied by soya may be estimated approximately at 15 000 to 20 000 hectares.

Annam. — Grown chiefly in the north in the province of Thanh-Hoa and Nghe-An, Hatinh, where it occupies an area of about 750 hectares. In the Centre and South, it is not extensively grown (about 170 hectares).

Laos. — Grown on a small scale in almost all the provinces. The area under cultivation cannot be ascertained.

Cambodia. — Cultivated in the provinces of Kandal, on the banks of the [illegible]ong over an area of about 500 hectares.

Cochin-China. — Of little importance. Soya is grown in the provinces of the Thudaumot and Chaudoc. Information on the area is unobtainable.

TABLE XXVII. — *Characteristics of the principal soya varieties bred and grown in the Netherlands Indies.*

Variety	Origin	Colour			Weight of 1000 seeds	Growth period	Growth habit.
		Seed	Cotyledons	Flowers			
No. 16	From the variety Otan introduced from Formosa in 1918 Bred at the Selection Station of annual plants.	Black	Yellow	Purple	83-104 g	75-85 days	Medium height, few branches, does not lodge easily, pods large, leaves dark green.
No 27	Bred by M. KOCH from the preceding variety; No. 16.	Black	Yellow	Purple	84 »	80-100 »	Vigorous plant, somewhat branched, leaves light green, pods shed very easily.
No. 17	Originating from variety Botan, introduced from Formosa in 1918.	Pale yellow	Yellow	White	58-73 »	80-100 »	Medium height, much branched, flexible with a tendency to climb, leaves narrow, and light green.
No. 28	Originating from a mixture of various lines obtained by M. KOCH in 1924 from the variety No. 17 and from plants with purple flowers.	Pale yellow	Yellow	Purple	66-82 »	89-95 »	Medium height, somewhat branched, leaves light green.
No. 29	Obtained in 1924 by M. KOCH by further selection from No. 17 choosing the most vigorous plants with the greatest number of pods.	Pale yellow with darker hilum	Yellow	Purple	60-68 »	90-100 »	Hardy, much branched, strong stems, leaves dark green, pods small but numerous, seeds rather small

Varieties of soya cultivated in Indo-China. — There is a strong resemblance between native varieties, all have small oval seeds, sometimes white, and sometimes darkened round the hilum. Not all local types have yet been distinguished. The Langson type, however, has acquired a special reputation. As to foreign varieties, several have been introduced recently from Russia, Japan, America and China.

Various breeds from Manchuria had been tried previously, but they have not supplanted the local breeds.

Work on soya is carried out in the following Experiment Stations: *Institute of Agronomical Research.* — Northern Section: Hanoi. Southern Section: Station of Ong-Yem. *Agricultural Services of Tonkin.* — Practical School of Tuyen-Quang. *Agricultural Services of Cambodia.* — Station of Petit-Takeo.

The qualities required in the new varieties are as follows: high yield, larger seeds, while maintaining the yield in oil and the content in nitrogenous substances, which are fairly high in the local breeds, regularity of production.

7. — PALESTINE.

Soya cultivation is not practised in this country though trials have been made at the Mikweh Israel School at Jaffa, but with very little success. A few variety trials were made in 1935 at the Experiment Station of the Department of Agriculture, but no satisfactory results were obtained.

D. — AFRICA

1. — FRENCH WEST AFRICA.

Trials were carried out in 1923 and 1926 at the Experiment Station of Soninkoura with very little success; hence soya growing is not extensively practised. In 1935, trials were started again at the Banankoro Station, but the results are not yet known. The only variety cultivated is *Soja Hispida*, the crops being used as green manure for the rice fields and for fuel oil production.

2. — ALGERIA.

Soya is not cultivated in this country though a few trials were carried out which showed that it would be possible to grow this crop in easily worked soils if kept sufficiently cool in spring. Following large scale trials at the Agricultural Institute of Algeria, near Algiers, it was noted that only small harvests were obtained in a dry year. This plant cannot be grown on the coast where similar crops, such as haricot beans, chick peas and lentils are grown. A few soya plants may be found in the collections of the Botanical Garden, the Botanical Station and the Agricultural Institute. In the future soya may perhaps be grown to a certain extent among the irrigated crops of the Chelif.

3. — BELGIAN CONGO.

Observed about 30 years ago at Stanleyville by Commandant Lemaire, [illegible]a is found in the collections of the Eala Botanical Garden and was the t[illegible]ect of experiments made at Sankuru in 1914-1915. It may appear strange that the cultivation of this leguminous plant has not developed to a greater extent in the Belgian Congo, all the more in that it has been introduced into West Africa, expecially into Southern Nigeria, the Gold Coast and Sierra-Leone.

The oil content is as follows: Nigeria: 19.62 % — Gold-Coast: 21.29 % — Sierra Leone: 23.2 % — Gambia: 17.5 %.

Among varieties grown in the Eala Botanical Garden mention may be made of a yellow variety, a purple, and the variety Otootan. Analysis has shown that they are as rich in total nitrogenous substances and oil as the soyas of West Africa and Cambodia.

4. — EGYPT.

Soya growing was introduced into Egypt in 1910. This plant is cultivated at present only on a small scale and chiefly for experimental purposes. Trials have been made of different varieties principally at the Higher School of Agriculture and the Agronomical Sections of the Ministry of Agriculture. Cultivation is confined to a small district of the province of Giza.

There are no native varieties. Among introduced varieties, the following have given certain positive results: Mammoth Yellow, Virginia, Manchu, Biloxi, Tokio and Hispida.

Soya is a summer crop. When grown for forage it is cut in August when flowering has begun; when grown for seed, harvesting takes place in September or October. The average yields obtained per acre are: 6 tons of green forage and 400 to 600 kg. of seed.

5. — MOROCCO.

Soya growing is still in the experimental stage in Morocco where trials have been carried out for about 15 years. Cultivation has not developed owing to the low yields obtained and also to a tendency to shedding shown by the majority of varieties so far tried out - a tendency which appears to be somewhat increased by the climatic conditions of Morocco.

Trials in acclimatisation with new varieties have been carried out in Morocco by the Agricultural Service, the Central Station of Rabat and other Experiment Stations of the Protectorat.

There are no native varieties. The foreign varieties were obtained chiefly from Canada and Manchuria. Qualities required are: (1) pods which do not shed the seed ; (2) adequate productivity.

6. — RHODESIA.

Trials in acclimatisation have been carried out for a certain number of years at the Experiment Station of Salisbury and all the best known varieties have been tested. Several of these varieties, such as Otootan, Otoxi and and Bilton, give excellent results as forage crops. The two best lines ha been obtained by breeding from Otootan. They are rather more producti than their parent, but, on account of their black seeds, are not suitable industrial purposes. The only variety recommended for export is Hermann, with yellow seeds.

Several crossings have been made between lines with pods which do not shed but which are otherwise inferior in quality, with a view to obtaining varieties suitable for Southern Rhodesia where, owing to drought or reasons yet unknown, the pods have a marked tendency to open.

7. — ANGLO-EGYPTIAN SUDAN.

Trials in acclimatisation are carried out chiefly at the Experiment Station of Gezira and by the Agricultural Research Service of Wad-Medani.

Trials carried out at Gezira.

Soya growing was first introduced at the Gezira Station in 1931-1932. No native varieties are grown, all have been introduced either from the United States, the Union of South Africa or India.

(a) *American varieties.* — Biloxi, Chiquita, Mammoth Yellow, Peking, Laredo, Herman (Haberlandt), Virginia, Easycook 29, Dixie, Mansoy, Harbinsoy, Manchu, Easycook 12, Easycook 17, Otootan, Mammoth Brown, Illini, George Washington, Tokio, Haberlandt.

For the description of these varieties see the chapter on the United States (*B.* No. 4).

(b) *South African varieties.* — Barberton (Transvaal), introduced from the Barberton Station (Transvaal).

(c) *Indian varieties.* — Poona Brown, Poona Black, Kalimpong Brown Small, Kalimpong Brown Large, Kalimpong Barmali, Kalimpong Green.

For the description of these varieties see the chapter on India.

In general, the following observations may be made: the Indian types of soya grow better than the American or South African. The variety Poona Black is the best, followed by Kalimpong Brown Small. The variety Barberton showed very poor growth. Among American varieties Otootan was the best, then Biloxi and Virginia. The varieties Mammoth Yellow, Mammoth Brown, Illini and Haberlandt gave fairly good results. Mansoy and Easycook 17 failed completely. The others gave very mediocre results.

Trials carried out by the Agricultural Research Service of Wad-Medani.

Trials carried out since 1912 have shown that the climate of the central region of the Anglo Egyptian Sudan is completely unfavourable to soya cultivation.

The following varieties were introduced during the course of trials:—

In 1912 varieties were introduced from India and South Africa.

(a) *Indian varieties.* — Barmali, Nepali, Greenish Yellow, Small Black, Small Chocolate. Bengal varieties: Yellow, Black, Chocolate.

(b) *South African varieties.* — Darjeeling, Black and Yellow, Hankow, Black-[illegible]auty, Mesko, Hollybrook Early.

In 1916 varieties were introduced from the United States: Mammoth 104, Haberlandt, t[illegible]io, Black Eyebrow, also an un-named variety from Tunis.

In 1931 varieties were again obtained from America: Harbinsoy, Biloxi, Otootan, Hahto, Laredo, Virginia, Mansoy, Mammoth Yellow, Tokio and Haberlandt.
Finally, in 1933, 5 varieties were obtained from Arizona.

As has already been said, all the trials showed that this region was not at all suitable for soya cultivation.

8. — Tripolitania.

Soya growing has not yet emerged from the experimental stage. Investigations have been and are being made at the Royal Experimental Agricultural Institute of Sidi Mesri. It may be said, however, that soya growing for seed production will not be practised generally, as this is only possible in irrigated regions involving high costs.

9. — Tunisia.

Trials with varieties of soya have only been made with a view to cultivation for forage. At present soya growing is of no practical importance in Tunisia.

10. — Union of South Africa.

The various Agricultural Experiment Stations in the Union of South Africa have tested about 50 varieties of soya introduced from the East and the United States. The differences between these varieties lie chiefly in the following characters: Colour of the seed coat, colour of the flower, existence or absence of pubescence, colour of the cotyledons, shape of the seeds, size and colour of the hilum, characters of the pods, duration of growth period (varying from 100 to 150 days), height and growth habit of the plant, size and shape of leaves.

It was observed that two varieties gave entirely different results and that, consequently, there was a possibility of obtaining a variety adapted to the particular climatic conditions and to the utilisation required. Table XXVIII, taken from the publication of M. F. M. du Toit, on soya growing in the Union of South Africa (*Soy Beans in the Union*, Pretoria, 1932) gives the characteristics of the 8 most important varieties in the Union.

E. — OCEANIA

1. — Commonwealth of Australia.

1-*a*. — Southern Australia.

Apart from a very few trial plots, soya growing is not practised in this State as the conclusion has been reached that local climatic and soil conditions are not suitable for this crop.

1-*b*. — New South Wales.

Several years ago, the Department of Agriculture tried to introduce so into the agricultural economy of the State, either as a green manure or for or for the multiple uses of the seed. During the last 20 years, numerous

TABLE XXVIII. — *Characteristics of the principal soya varieties cultivated in the Union of South Africa.*

Names of varieties	Growth Habit	Height in feet	Colour of the seed	Colour of the flowers	Number of days to mature		Oil content	Yields in hay and seed per *morgen* (2.116 acres) average of 4 years			
								Natal		Transvaal	
					Natal	Transvaal		Hay lbs	Seed sacks	Hay lbs	Seed sacks
American Eyebrow .	Erect, but not very vigorous	1 ½–2	Green, upper part brown	White	115	100	17.97	5 454	4.50	2 980	3.50
Morse	Similar to Chinese White	2 ½–3	Yellow	Purple	130	115	18.07	....	....	3 770	5.49
American White . .	Erect	3–4	Yellow	White	135	130	16.00	7 608	9.88	3 887	4.00
Mammoth	Erect	3–4	Yellow	White	135	130	16.53	8 728	9.50	4 500	5.60
Brown	Tall and branching	2 ½–3	Brown	White	135	125	17.73	7 310	12.60	3 715	5.25
Chinese White . . .	A little taller than Mammoth	3	Yellow	White	125	110	17.23	8 812	11.05	3 508	6.25
Haberlandt	Similar to Chinese White	2 ½–3	Yellow	White	120	106	19.17	....	....	3 511	5.50
A. K.	Less branching than Chinese White	2	Yellow	Purple	120	104	18.83	....	....	3 260	5.03

ieties have been introduced and many trials have been carried out in all parts of the country. Generally speaking, the results were not satisfactory and efforts to introduce soya into the economy of the country were not successful. The growth of the soya plant was very poor and the yields in seed low. One of the reasons why soya does not succeed seems to be the absence of the bacteria of root nodules in the soil of this State. Utilised as a spring green manure, soya is inferior to cow peas in the coastal regions. In the Table-lands soya cultivation appears to give better results. In the Murrumbidgee irrigated areas, it may be used in crop rotation, particularly with rice. Although the growth of soya as a green forage is generally good, it appears difficult to place this crop as there is generally an abundance of green forage at the time when soya is utilisable. As, on the one hand, it seems very difficult to obtain economic yields and, on the other, soya may be imported from the East at very low prices, this crop has very little chance of being adopted in New South Wales under the present circumstances.

1-*c.* — Queensland.

Soya has been grown experimentally in this country for a great number of years, but the results were more or less negative and the areas now cultivated with soya are almost negligible.

A few very tall varieties, such as Biloxi and Otootan, have proved to be suitable as forage, but they have not been adopted by farmers, who obtain forage more easily in cultivating cow peas or other leguminous plants.

Trials in inoculating soya seeds do not appear to have given any results though other trials should be carried out in the agricultural districts before this crop can be said to be quite unsuited to this State.

The internal market for soya and its derivatives is limited as it is supplied by imports from Manchuria and Japan.

Owing to the abundant production of all kinds of feeds for live-stock, the use of soya will be difficult to establish unless it is utilised in crop rotation with cotton or maize.

1-*d.* — Victoria.

No systematic attempts have yet been made to introduce soya growing into this State. Various trials previously made for experimental purposes showed that this crop was not of sufficient economic interest to replace the existing crops of leguminous plants.

In 1933, however, the Department of Agriculture undertook a series of trials in soya growing in East Gippsland, in light, sandy soils on undulating land where the rainfall of 750 mm. is well distributed throughout the year. Apart from these and other trials carried out by private persons, soya production does not exist in this State. The chief interest this crop might have for the Australian farmer would be to provide feed for live-stock or to serve as crop for improvement purposes. On the other hand, however, feeds with a h protein content can be obtained at a relatively low price and this will prev soya becoming of great importance in the national economy.

Imports into Australia are of no great importance. In 1932-1933, 40 808 gallons of soya were imported; value £ 1778. Of these imports 90 % came from China. During the same period 12 tons of seed were imported from Japan; value £ 148.

2. — HAWAII.

Soya growing was introduced in 1908 at the Experiment Station of Honolulu. It is grown at present on only a very small scale. Trials in adapting varieties are carried out by the Agronomical Division of the Experiment Station of the University of Hawaii, Honolulu.

No native varieties are grown. The foreign varieties came from the United States, the principal being: Biloxi, Mammoth Yellow, Tokio and a few varieties utilised for green vegetables. The qualities required in the new varieties are the following: late maturity, seeds with yellow seed coat, high yields, pods which do not shed at maturity, high yields in forage, suitability for manufacturing soy sauces and other products. The growth period of the various cultivated varieties varies from 80 to 120 days. The yields vary between 600 and 1200 lbs. of seed per acre

3. — NEW CALEDONIA.

Soya cultivation was introduced in 1928. No native varieties are grown, only foreign varieties, seeds of which were introduced on two occasions by the Chamber of Agriculture and the Administration. The principal variety is *Soja hispida*. Medium yields are obtained. There appears to be no future for soya as New Caledonia is abundantly provided with similar products which are in current use.

D. KALTENBACH and J. LEGROS.

Publications consulted.

In preparing this article, use has been made o various Bulletins published by American Experiment Stations and dealing with the subject, and also of the replies received by the Bureau of Agricultural Science of the Institute to the enquiry addressed to the organisations concerned in all parts of the world.

RECENT PROGRESS IN THE TECHNIQUE OF AGRICULTURAL MACHINERY

The increasing difficulties which have been encountered during the last few years in the use of agricultural machinery as a result of the agricultural crisis, have brought about an increased adaptation of the machines to difficult agricultural conditions and consequently great progress has been made both in respect f motor machines and of other implements used on the farm.

An effect which is particularly characteristic of the general crisis is the decrease les as between the different countries, accompanied by efforts directed towards rchy in each particular State. In respect of agricultural motor machines, this tendency has led to preference being given to Diesel motors and motors running on gasogene rather than to petrol driven motors in countries where petrol has to be imported.

POWER MACHINERY.

The *development of the Diesel tractor*, which a few years ago was hindered by quite special technical difficulties, has received a great impulse and is now surpassing and supplanting petrol motors, properly so-called, in tractor construction. In Germany, tractors are almost exclusively provided with heavy oil engines. England and France have followed this example, and also the United States, which for a long time remained indifferent to this development owing to the cheapness of petrol, has also recently changed over to the construction of Diesel tractors, and particularly of tracklaying tractors. The " Caterpillar " Factories have recently put on the market a new Diesel tractor of 30 hp., consuming very little fuel, with the help of which the farmers in the Middle West hope to obtain a further reduction in production costs in the wheat growing regions.

The solidity of the chains, hitherto the weak point of these tractors, has been considerably increased by the improvement in material and by better construction. Certain of these tractors already have chains with rubber attachments or wheels of rubber throughout.

Generator gas fuel motors are still the subject of much discussion. Trials have frequently been made with a view to their utilisation, but have always been abandoned. The chief motive for these trials was the discovery of cheap fuels, obtained from residues found in all countries, which unless thus used, had very little value. The reason for abandoning these trials lay to a large extent in the heavy wear and tear involved, lowering of traction strength, slow starting and the practical difficulties encountered in utilisation as compared with engines working on liquid fuels. In Germany, France, Italy and Russia, considerable improvements have been made owing to intensive study and research so that it is now possible to construct reliable stationary engines for agricultural and forestry purposes, which are extremely valuable where the fuel is readily available.

For motor lorries, gasogene engines are also in practical use. At the last Salon of Agricultural Machinery at Paris, such engines were exhibited mounted on tractors, but their success is still in doubt as the output of gasogene motors is considerably below that of ordinary motors. While the Diesel motor surpasses the petrol motor from the technical point of view, it cannot be said that the supplementary gasogene apparatus is an improvement on the petrol motor, which working with combustible fuels still remains the cleaner and simpler. Consequently, certain investigators are enquiring whether it would not be desirable still further to encourage the transformation of solid into liquid fuels, but, for the moment, the cost of the hydrogenation of solid fuels may still be regarded as prohibitive. Hence, for the time being, the development of both methods, the gas generator and hydrogenation should be continued in the hope that both will give practica results more satisfactory than those hitherto obtained.

New possibilities of utilising tractors may be found in equipment with pressure pneumatic tyres for work in the fields and on the roads. Trials car out during the last few years have been directed towards improving the *adhesive capacity* of rubber tyres under different conditions. These trials have shown that this adhesive capacity is determined less by the tread design than by lower pressure on the ground. As large tyres require less air pressure, enlargement of the tyres also produces an increase in traction capacity. These larger tyres, however, are more costly and also require greater garaging space, consequently, the increase in size should be kept within optima limits. On humid soils, chains with paddles, as first used in the United States, are not very satisfactory and also cause greater strain on the tyres. On such soils, however, accessory well constructed lugs, outside the tyres, have proved to be equal to steel wheels with lugs.

In the United States, pneumatic tyres have considerably increased the use of all purpose tractors, built for pressure of work, not only during tillage and harvesting, but also for cultivation purposes (chiefly maize). This tractor has a high clearance, large driving wheels adjustable to varying spacing and a pair of small steering wheels very close together and placed forward under the chassis. It is interesting to note that of the total production of tractors in the United States, amounting to 161 131 machines in 1935, 106 343 were "All purpose tractors". Of this number 94 701 tractors were sold in the United States and only 951 abroad. Outside the United States, the use of this type of tractor has not yet become general as, owing to different agricultural conditions, the need for it has not been felt.

On the other hand, in many countries, small tractors are increasingly in demand. In the numerous trials carried out in the past in the construction of small practical tractors, chiefly in the United States, England, Germany, France and Switzerland, only the types suitable for large scale market gardening have been adopted, that is, those that can be used rather for replacing manual labour than for replacing horse teams.

For purely peasant farming it may said that these machines were non existent. A change has now taken place owing to the appearance of the pneumatic tyre in tractor construction, which has given a new impulse to the problem of the small tractor. Development ranges from the 2-wheeled tractor to the 4-wheeled tractor and the tracklaying tractor.

In Europe the small wheeled tractor has generally resulted from a further development of the motor-mower. In the construction of a number of these small tractors the beneficial influence of the Fordson tractor may be observed. The motors of these tractors have a power which generally varies between 10 and 20 hp. The power of the motor should not be too low as an essential use for tractors on small peasant farms is for ploughing, which requires a relatively high traction power. An important element in the transmission of traction power to the attachments is adequate capacity on the part of these tractors to adhere to the soil, a capacity which, as already stated, is increased by using wheels of large diameter. These dimensions should be preserved as far as possible in small tractors. Adhesive capacity and transmission of power [illegible] further increased by caterpillar wheels which, however, increase manufactu[illegible] costs and, for this reason, have not yet been generally adopted in building [illegible] tractors.

The majority of small tractors are still furnished with petrol motors. It is only in Germany that small tractors with tyres or caterpillar wheels and driven by heavy oil motors are seen.

For the utilisation of motor power on small farms, a *motor which may be carried on the back*, has been recently produced in Germany. The motor with the chassis is carried like a ruck sack, weighs 16 kg. and gives an output of 1 hp. A long shaft transmits the motor power to the different attachments such as the rotary plough, shears, etc.

A tendency to adapt agricultural machines to the needs of small farms has been shown during the last few years, not only in European countries, but also in countries over-seas. The manufacture of machines suitable for small farming, labour saving and inexpensive to run, is also gaining increasing importance from the social point of view of preserving a healthy peasant class. In the struggle for existence against the large farms, the small farmer is greatly assisted by good machines from the labour point of view. The increasing *electrification of the country side* is very important in this respect *even for the most modest requirements*, as also the development of electromotors and electrical instruments, which are becoming increasingly cheap and more practically useful.

As the electromotor may be built to any size, it has a particular importance among all the machines used on the farm itself. On the small farm, the small electromotor replaces a considerable amount of heavy manual labour, for driving milk separators, churns, washers – for sharpening the blades of mowers – pumping water and liquid manure – driving fanning mills, sorters, potato sorters, crushers, etc. During the last few years, very simple and handy kinds of apparatus have been produced and are becoming increasingly general in the country, such as the triphase asychronous motor with short circuit induction, and, among monophase motors, the electromotor with condenser, and, for all small power requirements, the electric motor with hand starter.

Agricultural Machinery.

Great progress has been made, not only as regards power machinery during the last few years, but also as regards other agricultural machines. The increasing use of rubber may be remarked, not only for waggon wheels, but also for important parts of machines, such as the distributing tubes of seed drills-platforms and elevating canvasses — beater bars and concaves of threshers, etc.

As to *ploughing implements*, several new forms of plough may be mentioned intended also to work the subsoil without bringing up the inert soil. An important novelty which has been tested during the last few years, chiefly on the large beet farms in England and France, for increasing yields, is the new **Fowler** system of heavy " Gyrotiller ", fitted with trenching apparatus and penetrating the soil very deeply.

The average speed of ploughing has been increased by mechanical traction, but on prudent lines. In the United States, 4.8 km. per hour is reckoned a suitab average, as it is considereed that greater speeds are not to be recommended the fields owing to the disproportion between the increased speed and the creased soil resistance, resulting in an increased risk of shock at each obstacle. It is possible that the use of low pressure pneumatic tyres will allow speeding up in the fields so as to attain a rate of between 5 and 6 km. per hour, which is recognised as being favourable to the quality of ploughing.

Mention has already been made of the possibility of decreasing the traction strain, due to the friction produced when ploughing, by inducing an electric current between the soil and the plough. Systematic trials are now in progress at the Institute of Agricultural Machinery at Munich, the results obtained up to the present having shown the practical utility of this process in ploughing heavy and humid soils, in which an economy of traction power has been obtained amounting to 20 %. As only very small amounts of electric current are required, it is sufficient to attach a small generator, like that used for lighting a car, giving 50 to 70 watts for each blade of the plough. The tension should not exceed 50 volts so that no risk may be run through touching the fittings conveying the current.

During the last few years, a great improvement has taken place in the construction of seed drills. Considerable progress has been made in regulating the quantities of seed sown by a device of control levers replacing the old systems of cog wheels. Seed drills are of special importance in national economy as owing to the uniform distribution of seed at the right depth, 20 % of seed is economised as compared with broadcasting.

In the *construction of mowers*, which, generally speaking, might have been considered as having been very highly developed, a decided increase in the duration of machines has been noted, owing to the introduction of the oil bath gear case; improvements have also been made recently in the cutting bar. The object of all construction of cutting bars is to obtain a good pressure of the blades on the bar. Results up to the present cannot be regarded as ideal. A fundamental modification was shown by M. PUZENAC at the last Salon of Agricultural Machinery at Paris, whereby the pressure on the cutting bar is obtained by a system of balls at the head of the blade.

Harvesting machinery and *Drying Plants* have been greatly improved during the last few years. For harvesting green forage, mowers are often provided with loaders and dischargers, which stack the cut forage on a waggon accompanying the grass cutter at the side or behind on a trailer waggon. This form of equipment is important chiefly for the transport of green plants to the artificial dryer. Hitherto the grass has been left exposed for a short time before artificial drying is applied, so as to economise the drying costs, but now, immediate drying of forage is increasingly practised as the simplification of labour organisation and the greater economy in time and labour compensate for the increase in the cost of fuel for drying.

Among new drying processes, brief reference has been made previously to the " Rema-Rosin " process. Latterly the BILLINGHAM dryer has been produced n England, which will give very satisfactory results from the point of view of nomy in fuel and uniformity in the drying process. This dryer consists of 2 municating drying chambers where the forage is dried on trays which shift y half hour. The material which has received a preliminary drying in the first chamber comes in contact in the second chamber with a mixture of air and gas from the furnace and drying is completed. The gas from the furnace, at an initial temperature of 150° C. first passes through the 2nd and then the 1st drying chamber and finally escapes through the chimney. The fresh grass is spread on a turntable outside the dryer while the dry forage, after leaving the dryer, is pressed into bales.

Artificially dried fodders are considered as having the same nutrition value as concentrated foods, so that they are of particular importance for countries where these foods have to be imported.

For *harvesting cereals*, there is also a tendency to utilise on small properties the advantages offered by the use of powerful machinery on large farms by manufacturing smaller machines specially suitable to the needs of the small farmer. While up to the present, the binder could hold its own on medium sized farms, against the harvester-thresher, there have now been put on the market small harvester-threshers, at relatively low cost and worked by the driving shaft of a simple tractor. Among these harvester-threshers, one of the most remarkable is the "all crop harvester" of ALLIS-CHALMERS, which is a more developed form of the "baby-combine" of 1930. This last machine, however, had a brush instead of an ordinary drum, while the present apparatus has a beater drum, of which the beaters and the canvasses are covered in rubber. This makes it possible to use the machine not only for cereals, but also for more tender crops such as peas and soya seed, without damaging the seeds. The current of air necessary for cleaning is maintained at the same strength by self-regulating valves so that the jarring of the machine cannot effect cleaning. The use of pneumatic tyres on the harvester-thresher insures longer service and at the same time allows for an increase in speed.

A new French harvester-thresher shown at the 15th Salon of Agricultural Machinery in the spring of 1936, has, like the machine constructed by DOUILHET, an apparatus for binding the straw of the harvested cereals. Attention has previously been directed to a German harvester-thresher, working on entirely new principles, so as to reduce the expenditure of power while the straw is being collected. This harvester-thresher, produced through the influence of the Institute of Agricultural Machinery at Bonn, was built with a frontal cutting bar, but the method of attachment to the tractor was too difficult for peasant requirements, and in consequence, the machine is now being transformed into a trailer machine with a lateral cutting bar.

As already said at the beginning of this article, a reduction in the costs of production in cereal growing in the Great Plains of North America was expected from the Diesel tractor and the new harvester-threshers, and consequently greater possibilities of capacity to compete with the wheat growers in Argentina and Australia, in the former of which animal traction is still chiefly used.

In regions where the harvest is gathered under more humid climatic conditions, the system of harvesting combined at the same time with threshing can in most cases only be adopted with further drying of the cereals. For this reaso in England, artificial cereal drying processes have been developed, under influence of the Institute of Rural Engineering at Oxford, for the purpose of drying cereals harvested and threshed simultaneously. These processes have given satisfactory results, but, in themselves, they diminish the advantages of the *harvester-thresher method*.

For humid regions, the *binder*, therefore, remains a decisive factor. Limited up to the present to large farms on account of its weight and resistance to traction, it has recently been adapted to the conditions prevailing on small farms. By transforming the running parts and diminishing the weight, it has been found possible to construct a binder for peasant farms which is relatively light in draught owing mainly to the use of pneumatic tyres and also of oil-bath gear cases. It is true that the use of oil-bath gear cases does not at first show a marked economy in draught power compared with unprotected gearing, but an economy becomes evident in course of practical use, as dust rapidly accumulates on the unprotected gears and increases wear and tear. Side by side with the construction of large scale machines, there is a tendency to construct *threshers* of quite small dimensions for supplying the requirements of peasant farms. As a result of detailed and intensive work, technical improvement have been introduced without any particular changes in principle. An exception is the SCHLAYER thresher (Madrid) to which attention has been frequently drawn. Its advantages lie chiefly in the replacing of the drum by threshing arms arranged spirally on the principal axle, thus rendering unnecessary any adjustment of the drum and also the use of shakers.

Another new thresher, from which also shakers are eliminated, is that manufactured in the Esch-Duisburg workshops and shown at the last Agricultural Exhibition at Frankfort in May 1936. In this machine the shaking is effected by a second drum and the whole transport of the grain is carried out by means of pneumatic conveyors. In this way it is possible greatly to reduce the size of the machine and at the same time to obtain a better performance with the same expenditure of power as for an ordinary thresher.

In this article emphasis had been laid throughout on the importance of *rubber* in the manufacture of agricultural machinery. Most of the improvements in these machines made during the last few years may be regarded as the direct or indirect result of the use of this material. Agriculture has often been described as an involuntary transport business; hence it is clear that improvements made in agricultural transport have the most profound influence on the whole organisation of agriculture. The development of farm carts with pneumatic types (a very simple improvement when compared with that in other agricultural accessories) and a similar equipment of tractors and other machines is changing completely the aspect of agriculture. For agriculture the future is dependent on the development of technique, but of a technique to be regarded not as an end but as an aid and means to an end.

H. J. HOPFEN.

CONTRIBUTION TO STUDIES ON SHEEP BREEDING IN TURKEY

(2nd part) (*)

I. — BREEDING OF WHITE KARAMAN SHEEP IN CENTRAL ANATOLIA.

4. — THE LIVE WEIGHT OF THE KARAMAN SHEEP.

As regards live weight, an average of 44.408 kg. has been established for ewes; KADRI gives 40 to 45 kg. The following variations have been found for individual live weights, (in kg.).

Live Weights	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58
Numbers of animals	1	4	4	4	6	8	11	13	12	11	9	2	0	2	

There are therefore strongly marked differences in the live weights of the various individuals, as is shown by the high value of the variations coefficient: $v + 12.57$; 63 % of the animals examined had a live weight of 40 to 50 kg.; 17 % of the animals were still heavier.

According to tests made at the Ankara abattoir, the average live weight of ewes 3 years old and over is very little lower than this average, as it does not exceed 42.07 kg. On the other hand the rams have an average live weight of 47.53 kg., which is slightly higher that the average (46.42 kg.).

These investigations have made possible the determination of the live weight of the sheep, according to their age. The data obtained are given in Table VIII.

TABLE VIII. — *Live weight of sheep of different ages.*

Ewes aged 1 to 1½ years	38.08 kg	Ewes aged 5 years	43.17 kg
Rams » » » »	39.54 »	Rams » » »	48.70 »
Ewes » » » »	39.83 »	Ewes » » »	42.12 »
Rams » » 2½ »	44.34 »	Rams » » »	51.46 »
Ewes » 3 4 »	41.01 »	Ewes » 7 »	....
Rams » » » »	45.01 »	Rams » » »	48.90 »

Table VIII shows that the rams attain their maximum weight at 5 years, while the weight of the ewes increases up to 6 years. The 7 year old rams weigh less than the 6 year olds.

Up to the age of 5 years, the ewes increase by 1.2 to 2 kg. per year. Their annual increase is generally greater than that of the rams and may reach 4.8 kg. In one-year old animals, the difference in live weight between

---

(*) The first part of this Article was published in B. No. 7 July.

rams and ewes does not exceed 1.5 kg. in favour of the male; in the following years it increases, rising from 4 to 9 kg.

It may be generally stated, especially for the German indigenous sheep, that the live weight of the ewes is greater in autumn than in spring. On this subject, LINNENKOHL indicates for the different age categories of the Rhön ewes of the Laer flock, between March and October 1925, differences in weight, varying from 11.7 to 14.3 kg.; but that year the winter was extremely unfavourable, and the feeding particularly bad.

Table IX shows the average live weights of ewes and rams of different ages, for the periods September-November, December-March and April-July, based on our tests made at the abattoir, regularly twice a week on 10 animals.

TABLE IX. — *Average live weights of ewes and rams at different ages, during three periods of the year.*

Periods	Animals of 2 to 2 ½ years		Animals of 3 to 4 years		Animals of 5 years	
	Females	Males	Females	Males	Females	Males
September-November	41.68 kg	43.00 kg	43.8 kg	44.02 kg	43.91 kg	45.11 kg
December-March	37.2 »	43.3 »	40.2 »	. . . .	42.22 »	46.12 »
April-July	35.00 »	44.48 »	34.4 »	51.21 »	40.77 »	51.93 »

The data of Table IX show that the weight of the ewes is at the minimum from April to July and at the maximum from September to November. The same phenomenon is noted in the Karaman ewes as in the German indigenous ewes, and the causes are the same.

The fall in weight of the ewes during the April-July is to be attributed to the insufficient feeding during the winter, the lambing and suckling, which exhausts the mother ewes very severely. The feeding supplied by the pastures cannot compensate for the exhaustion caused by suckling. On the other hand the good live weights noted in the autumn are due to the abundant feeding that the animals find during this season. In Germany the advanced stage of gestation of the ewes must also play an important part in this increase of weight, especially in the flocks of the Rhön, where lambing takes place in winter.

LINNENKOHL says that the difference in weights in March and October diminishes with age; it is in any case minimum in the oldest animals and maximum in the youngest, while in the intermediate categories, it is less constant. In the Karaman sheep of 2 to 2 ½ years old, the difference in the weight in the September-November period and that in April-July represents 18.8 % of the latter, as against 8 % in 5 year old animals. In ewes of 3 to 4 years the difference is notably greater than in ewes of 5 years. In rams, these differences do not appear and they differ entirely from the ewes in this respect; in the three age categories they have a maximum weight from April to July and a minimum weight in September-November. From December to March, their weight is either greater or less than in the September-November period. The animals reach their maximum weight at the time of service. The spring pasture increases the weight; but on the other hand, serving causes it to diminish, and in spite of the good feeding on the pastures, the weight falls.

5. — VARIATION IN BODY DIMENSIONS.

Table X shows the variations of the body measurements of the Karaman ewes by means of the coefficients of variation and gives, opposite, the coefficients of LINNENKOHL for the Rhön ewes of the Laer and Gerstungen flocks.

TABLE X. — *Coefficients of variation of Karaman ewes and Rhon ewes.*

Dimensions	Karaman ewes	Rhön ewes. 1925	
		Laer flock	Gerstungen flock
Height at withers	4 56	5.17	2.56
» at back	4.398	4.72	2.61
» at crupper	4 92	3 85	2.56
» at shoulder joint	6 62	4.78	2.92
» at elbow	5.58	4.49	3 31
Length of trunk	4 76	4 44	2.67
Depth of thorax	6 53	3.94	3 80
Breadth between shoulder joints	8.34	6.97	5.93
Breadth between haunches	7 91	6.09	4.83
Breadth of pelvis	9 48	4.25	4.26
Maximum convexity of sides	9 47	....	....
Length of head	6.57	2.97	2.96
Minimum width of forehead	8 11	3.19	5.57
Maximum width of forehead	5.66	....	....
Length of ears	12.54	5 95	3.33
Breadth of ears	10.84	6.65	3.32
Circumference of the tibia	5.32	5.24	4.47
Live weight	12 597	....	....

The minimum variation, that is to say, the coefficients of variation from 4 to 5, are found in the dimensions: height of the back, at withers and at crupper, length of the trunk, which also showed minimum values in the Rhön sheep, with the exception of the height at withers and at back in the Laer flocks in 1925. Next come the variations of the dimensions of the circumference of the tibia, depth of the shoulder, breadth of the forehead, with coefficients of 5 to 6; thirdly: the depth of the thorax, length of the head and height at shoulder joint, with coefficients between 6 and 7; then follows the breadth between haunches with a coefficient of 7.9. The breadth of the thorax and the minimum breadth of the forehead have coefficients between 8 and 9. The maximum convexity of the sides and the breadth of pelvis have coefficients comprise between 9 and 10. The greatest variation is found in the breadth of the e ($v = 10.8$), the length of the ears and the weight of the body ($v > 12$).

On comparing the variations of the body dimensions of the Karaman sheep with those of the Rhön sheep, it is seen that in the former, only the coefficients of variation of the height at back and the height at withers are lower (by 0.6 to 0.3) than the highest coefficients obtained from the Rhön sheep, while all the other coefficients are greater. The smallest difference of variation (0.1) is found in the circumference of the tibia. It is also small for the length of the trunk (0.4), and for the height at crupper (1.0). Then follow, with differences from 1 to 2 in the coefficients of variation: the height at elbow, breadth between the shoulder joints, height at same and breadth between the haunches. In the Karamans, the coefficients of variation are greater by 2.6 for the depth of the thorax, by 3.6 for the length of the head, by 4.1 for the breadth of the ears, and by 4.9 for the minimum breadth of the forehead. The largest differences are found in the breadth of the pelvis (5.2) and in the length of the ears (6.5).

On comparing the variations of the Karamans with those of the Rhön sheep of the Gerstungen flock, still greater differences are found in most of the dimensions.

In the Karaman sheep, the uniformity of the flocks is very variable. It is sometimes also very great in flocks where, for many decades, rams bred in a flock have been used in that same flock. In general, there is no systematic breeding of the Karaman sheep, and so far as interbreeding has not played any part, and especially in the flocks, where the lambs are all sold at the same time at very different stages of development, the homogeneity of the entire flock is less than that of the German indigenous sheep, as shown by the example of the flock just considered. The German indigenous sheep have always been bred more systematically, at any rate during the last 10 years. On the other hand, as a result of the variations in either direction in the Karaman flock studied, variability is very marked notably for the dimensions which are important with regard to the development of flesh, such as the breadth and the depth of the thorax, the breadth of the pelvis and the width between the haunches.

7. — WOOL OF KARAMAN SHEEP

(a) *Characteristics of the wool.*

The fleece of the Karaman sheep is very mixed and the tufts are open and long. The disadvantages of an open tuft are compensated by the length and by the overlapping structure. It may be ascertained, even by touch, that, as with Karakul sheep, the content in fine hairs is very variable. The length of the wool varies greatly in the individuals. The wool is generally soft and pliant, though sometimes coarse and rough (e. g., the dark wool of these sheep) as observed by ABIDIN. The wool is in part slightly wavy and in part completely smooth. As with the Karakul, there are differences in the gloss of the fleece. Some animals have a very glossy fleece, others a fleece with a dull appearance.

(b) *Shearing and weight of the fleeces.*

In Central Anatolia, sheep shearing takes place only once a year, between [illegible]y and mid-August and preferably in June. The shearing season chiefly de[illegible]ds on meteorological conditions. If the animals are left out of doors, as the

May nights are still relatively cool, losses may occur in the flocks if shearing has taken place as, without the protection of the fleece, the sheep's body is less resistant to a fall in temperature.

The weight of the fleeces, as shown below, have been taken from Karaman sheep purchased in 1933 and 1934 in the region of Kochhissar for the Higher School of Agriculture.

The following are the variations observed in the percentages for animals according to the weight of the fleeces graded from 0.5 to 0.6 kg.

Weight of fleeces (in kg.)		0.5	1.0	1.5	2.0	2.5	3.0	3.5
Percentage of animals	in 1934	5.8	7.7	30.8	38.5	15.4	1.9	—
	in 1935	—	4 6	34.4	40.5	14.4	4.6	1.5

Of the animals tested, more than ²/₃ in 1934 and ³/₄ in 1935 had a fleece weighing from 1 to 2 kg.; 17.3 and 20.5 % respectively had fleeces weighing more than 2 kg. This table, however, gives inaccurate information as, in 1934, tests were made with sheep 2-3-4-5-6 years old, while in 1935 one year old sheep were included and those of 5 and 6 years old excluded.

If animals of 2 to 4 years old only are taken into consideration, the following table is obtained:—

Weight of the fleeces (in kg)		0 5	1.0	1 5	2 0	2 5	3 0	3 5
Percentage of animals	in 1934	2 3	3 0	31 8	40 9	16 0	2 3	—
	in 1935	—	4 1	34 7	41 3	13 2	5.0	1 7

Among the 2 to 4 year old animals there were thus 72.7 % in 1934 and 76 % in 1935 with a fleece weighing 1 to 2 kg; in 1934 there were 18.3 % and in 1935, 19.9 % with a heavier fleece. The general average weight of the fleeces, therefore, was 1.668 kg. in 1934 and 1.560 kg. in 1935.

Table XI shows the average weight of fleeces obtained from Karaman sheep from 1 to 6 years old.

TABLE XI. — *Average weight of fleeces obtained from Karaman sheep 1 to 6 years old.*

Sheep	1934		1935		Yields in 1935 in % of those of 1934
	kg	%	kg	%	
From 1 year	....	....	1 750	93.8	....
From 2 years	1 905	100	1.865	100 0	97.9
From 3 years	1.739	91 3	1.585	85.0	91.1
From 4 years	1.361	71.4	1.229	65.9	90.3
From 5 to 6 years	1.250	65.6	....	....	....

These figures show that the 2 year old sheep have the heaviest fleeces and that, from the 3rd year, a reduction in wool production take place. Th decrease is greater with 4 year old animals and continues to be more notable with 5 to 6 year old animals, though with 3 to 4 year olds it is less r

In 1935, the difference between the wool production of animals 3 to 4 years old and those 2 years old was greater than in 1934. The very low yield in 1935 should be attributed to insufficient feeding, which appears to have a greater influence on the wool production of 3 year old sheep, which usually show a smaller decrease in the weight of the fleece than animals of other ages.

(c) *Yield.*

Animals with a mixed wool generally give a high yield and this wool is relatively clean having a very small quantity of grease.

The total yield is fixed, according to the KRONACHER method, on the basis of the yield of various samples of wool from the shoulder, flank and thigh.

Although this method of determining the yield gives good average values with the German sheep, a very much lower total yield must be expected with the Karaman than the laboratory yields, on account of the dirtier condition of the wool on the belly, thighs and tail. A diminution in yield of about 15 % should be expected when taking as a basis the data from Karaman wool washed as part of the industrial process. Parallel investigations, however, have not yet been made, for the two breeds in question, on the fleeces washed and not washed.

The total yield of the fleece determined according to the KRONACHER method was on an average 68.6 %. More than half the animals gave a yield between 62 and 74 % and ¼ gave a higher yield. The various values obtained are shown in Table XII.

TABLE XII. — *Percentages of yield and numbers of corresponding animals.*

Percentage of yield	Numbers of corresponding animals	Percentage of yield	Numbers of corresponding animals
50–52	1	70–72	7
52–54	0	72–74	9
54–56	1	74–76	3
56–58	2	76–78	1
58–60	2	78–80	3
60–62	4	80–82	1
62–64	11	82–84	1
64–66	8	84–86	2
66–68	3	86–88	0
68–70	9	88–90	1

Table XIII gives a comparison between the animals in respect of yields om the shoulder, flank and thigh.

The maximum amount of dirt is found, therefore, on the shoulder and the thnum on the thigh.

TABLE XIII. — *Yield from the shoulder, flank and thigh and % of corresponding animals.*

Yields	Shoulder	Flank	Thigh
Maximum	17.4% of the animals	36.2% of the animals	46.4% of the animals
Average	26.1% »	31.9% »	42.0% »
Minimum	56.5% »	31.9% »	11.6% »

(d) *Fineness and uniformity of the staple.*

The thickness of the hair or staple has been examined under the microscope by the SPÖTTEL and TAENZER method; the results of the investigations have been shown in variation series or hair (*i. e.*, staple) thickness curves.

BARKER, DÜRDEN, BOSMAN, SPÖTTEL and TAENZER have repeatedly called attention to the importance of the frequency curves in respect of the thickness of staple, especially from the point of view of the textile industry, as these curves show how the fibre should be treated. The thickness curves are so constructed that the abscissae represent the thickness or fineness of the hair scaled at 2.4 microns apart, while, for each thickness, the corresponding number of hairs is shown as ordinates. For comparison, the variation series may also be used directly.

In the case of mixed wools, such as the wool of the Karaman sheep, the asymmetrical variation curve is characteristic, *i. e.*, the curve with two or more peaks.

The asymmetrical curve at first rises rapidly, and forms a peak corresponding to the lower micron values, then descends more or less gradually to the part representing the higher micron values.

In Table XIV is shown the percentages of the samples of shoulder, flank and thigh wool examined, which have given a frequency curve for the staple, one-, two-, three- or more- peaked, respectively.

TABLE XIV. — *Various frequency curves and percentages of the different corresponding wools.*

Wool	Percentages of the different wools corresponding to the various curves						
	One-peaked curve	2-peaked curve	3-peaked curve	4-peaked curve	5-peaked curve	6-peaked curve	Curve with more than 6 peaks
Shoulder wool . .	7.02 %	66.67 %	19.3 %	1.75 %	1.75 %	—	3.5 %
Flank wool . . .	14.04	52.64	26.32	1.75	—	1.75 %	3.[illegible]
Thigh wool . . .	7.02	49.13	33.33	3.5	3.5	—	—

For the wool of all parts of the body the two- and three- peaked variation curves are seen to predominate. For the shoulder wool some two-thirds of the curves are two-peaked and one- fifth three-peaked; for the flank wool, somewhat more than half the curves are two- peaked and one fourth three-peaked; for the thigh wool, about half are two- and half three- peaked. From shoulder to thigh wool, the number of two- peaked variation curves decreases slightly, while the number of three- peaked curves increases. The one- peaked trend of curve is found most frequently in the case of the flank wools.

If the trend of the curves representing the thickness of staple of shoulder-flank-and thigh wools is compared, in 33.33 % of the cases there is correspondence between shoulder and flank; in 17.54 % between shoulder and thigh, in 12.28 % between flank and thigh, and in 15.79 % of the cases the trend of the curves for the wool of all the three parts differs.

In curves of this nature the average value of the whole variation series is of no significance as a typical value of the variation, and indeed gives a completely false picture, as from a calculation of the average value a wool of A quality would be reached. Also the average values of the separate curves cannot be precisely estimated, as the areas of the curves cannot be sharply distinguished. With these curves it is, according to JOHANNSEN, of importance to use the foot of the peaks, as being the highest places on the curves, as typical expression of the variations. This holds good not only for the several-peaked, but also for markedly asymmetrical variation curves.

Table XV shows among what values in microns is to be found the first peak of the staple thickness frequency curves for the wool samples of the shoulder, flank and thigh, that is, the peak situated among the the lowest micron values.

TABLE XV. — *Place of the 1st maximum of staple thickness curves.*

Microns	Percentages of wool samples		
	Shoulder	Flank	Thigh
12.0–14.4	7.0 %	5.3 %	23.6 %
14.4–16.8	26.3	28.1	32.7
16.8–19.2	28.1	42.1	12.7
19.2–21.6	14.0	10.5	20
21.6–24.0	15.8	12.3	5.5
24.0–26.4	7.0	1.8	3.6
26.4–28.8	1.8	—	1.8

From Table XV it is seen that the first maximum or peak is found among the micron values characteristic of the finest Merino wools; but in the case of these Merino wools the second and third peaks of the curves are not present. The first maximum of the staple thickness of the shoulder and flank wools is mainly to be found between 14.4 and 19.2 microns, while for the thigh wool the maximum is partly among the lower and partly among the higher micron values.

When comparing, for the shoulder, flank and thigh of the same animal, the position of the first part of the curve of thickness of staple, as characterised by the first maximum, it is seen that, for the shoulder wool this maximum is found: in 38.6 % of the cases among lower values than for the flank and thigh wools, in 35.08 % of the cases among values between those of the flank and thigh wools, and in 26.32 % of the cases among higher micron values than those of the other two parts of the body.

For the flank wool the corresponding values are: 43.86 % (wool finer than that of the shoulder and thigh), 36.84 % (wool intermediary between that of the shoulder and thigh), and 19.3 % (wool coarser that that of the shoulder and thigh). For the samples of thigh wool the 1st part of the curve shows, in 17.54 % of cases, a finer wool than on the flank and shoulder; in 28.08 % of cases, a wool intermediary betweeen those of shoulder and thigh and in 54.38 % of cases; a wool coarser than those of the shoulder and thigh.

The wool of the flanks has, therefore, a tendency to be finer than that of the shoulder while in more than half the cases, in respect of the wool from the thigh, the fine down represented in the first part of the curve is coarser than that of the shoulder and flank.

If the number of the samples examined of shoulder-, flank- and thigh wool, of which the curves of thickness of staple show a second maximum or peak, is taken as 100, this second maximum is found among the micron values as shown in Table XVI:

TABLE XVI. — *Place of the 2nd maximum of staple thickness curves*

Microns	Percentages of the samples examined having values shown		
	Shoulder wool	Flank wool	Thigh wool
21.6–24.0	12.5 %	2.2 %	3.9 %
24.0–26 4	1.7	8.7	3.9
26.4–28.8	5.4	8.7	9 7
28.8–31.2	5.4	8.7	5.9
31.2–33.6	9.0	13.0	2.0
33.6–36.0	18.0	17.4	9.8
36.0–38.4	19.8	19.8	15.7
38.4–40.8	10.7	13.0	15.7
40.8–43.2	14.4	6.6	3.9
43.2–45.6	1.7	2.2	13.7
45.6–48.0	1.7	—	7.8
48.0–50.4	—	—	5.8
50.4–52.8	—	—	2.0

The second maximum of the staple thickness curve, in about ²/₃ of the shoulder wool examined, is found between 33.6 and 43.2 microns, thicknesses which are characteristic of *C* and *D* wools.

For about two- thirds of the flank wool samples, the 2nd maximun the variation curve of staple thickness lies between 31.2 and 40.8, while one-third of the number the frequency indices lie among the lower micron values rather more frequently than is the case with shoulder wool.

In the case of almost half the samples of thigh wool examined the 2nd maximum of the variation curve lies between 38.4 and 45.6. As compared with the shoulder and flank wools this maximum occurs more frequently among higher micron values.

On Table XVII are shown the micron values among which the 3rd maximum is found.

TABLE XVII. — *Place of the 3rd maximum of staple thickness curves.*

Microns	Percentage of samples examined having values shown		
	Shoulder wool	Flank wool	Thigh wool
28.8-31.2	7.7 %	—	—
31.2-33.6	7.7	—	—
33.6-36.0	—	5.9 %	—
36.0-38.4	7.7	11.8	4.3
38.4-40.8	7.7	11.8	8.7
40.8-43.2	7.7	11.8	8.7
43.2-45.6	15.4	11.8	4.3
45.6-48.0	15.4	11.8	17.4
48.0-50.4	23.1	17.5	13.1
50.4-52.8	—	—	8.7
52.8-55.2	—	5.9	13.1
55.2-57.6	7.7	—	4.3
57.6-60.0	—	—	4.3
60.0-62.4	—	—	4.3
62.4-64.8	—	5.9	—
64.8-67.2	—	—	—
67.2-69.6	—	—	—
69.6-72.0	—	—	—
72.0-74.4	—	5.9	4.3
74.4-76.8	—	—	4.3

For the third maximum, as for the 2nd, the frequency curve of the thigh wool samples lies among the higher micron values more often than in the case of shoulder and flank wool. On the other hand, in the curve of the flank wool, there is predominance of the lower micron values. For the shoulder wool the 3rd maximum is most often found between 43.2 and 50.4 microns; for the flank wool between 36.0 and 50.4 microns; for the thigh wool between 45.6 and 55.2 microns.

As regards the variability of staple thickness the coefficient of variation gives the clearest indication. In the following table on the first line are given the coefficients of variation of staple thickness and on lines 2-3-4 the corresponding numbers of samples of shoulder, flank and thigh wool respectively.

About 70 % of the samples of shoulder wool have a coefficient of variation [illegible]ween 30 and 45; this coefficient is between 35 and 55 for about 70 % of t[illegible]samples of thigh wool and for more than 60 % of the samples of flank wool. The minimum variability in the thickness of the staple is therefore to be found in shoulder wool; in flank wool it is medium and sometimes greater than with thigh wool.

TABLE. XVIII. — *Variation coefficients of staple thickness and corresponding figures in respect of shoulder, flank and thigh wool.*

Coefficients	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
Shoulder		1	1	1	8	18	10	7	3	3	1	1	0	2						
Flank			1	0	3	9	9	12	5	4	2	4	3	2	0	0	0	1	0	1
Thigh					7	11	12	6	9	7	0	3	1							

In comparing these variations in thickness of staple for the same animal, with the aid of coefficients of variation, the following data are obtained:

Coefficient of minimum variation: in 63.1 % cases in shoulder wool, in 14.2 % cases in flank wool; in 22.8 % in thigh wool;

Coefficient of medium variation: in 31.6 % cases in shoulder wool, in 24.4 % in flank wool; in 43.9 % in thigh wool;

Coefficient of maximum variation: in 5.3 % cases in shoulder wool; in 61.4 % in flank wool; in 33.3 % in thigh wool.

It may also be deduced from these figures that the maximum variability is found in the staple of the flank wool and the minimum in that of the shoulder.

Each sample of wool contains various categories of staple fineness. In mixed wools the staple ranges between *aaaaa* and *ee*. The limits of the various categories of fineness are the following:

Staple Thicknesses	Category	Staple Thicknesses	Category
Up to 16,8 microns	*aaaaa*	28,8 microns.	*b*
19,2 »	*aaaa*	31,2-36,0 »	*c*
21,6 »	*aaa*	38,4-43,2 »	*d*
24,0 » . . .	*aa*	45,6-60,0 »	*e*
26,4 »	*a*	Plus de 60	*ee*

The following Tables show the percentages of the various categories of staple fineness *a* and finer, *b*, *c*, d, *e*, and *ee* in the wool of Karaman sheep. The figures refer to 300 investigations made on one sample.

TABLE XIX. — *Staples of* a *category and finer.*

Number of *a* staples	30	55	80	105	130	155	180	205	230	255	280
Shoulder	5.4	1.7	1 7	3.4	8.5	25.4	20.3	20.3	15.3		%
Flank			1.7	5.1	3.4	13.6	20.3	23.7	27.1	5.1	%
Thigh	3 4	3.4	6.8	3.4	15.3	27.1	18.6	13.6	8.5		%

TABLE XX. — *Staples of* b *and* c *categories.*

Number of staples	5	30	55	80	105
Shoulder	15.3	33.9	32.2	18.6	
Flank	27.1	42.4	22.0	8.5	
Thigh.	10.5	41.0	25.9	22.4	

TABLE XXI. — *Staples of* d *category.*

Number of staples	< 15	15	30	45	60	75
Shoulder	20.3	42.4	22.1	8.5	6.8	%
Flank	35.3	52.6	11.9			%
Thigh	15.3	55.9	17.0	8.5	3.4	%

TABLE XXII. — *Staples of* e *category.*

Number of staples	< 10	10	30	50	70	90
Shoulder	33.9	39.0	22.1	3.3	1.7	%
Flank	39.0	44.1	11.9	5.1		%
Thigh	11.9	40.7	37.3	6.8	3.4	%

TABLE XXIII. — *Staples of* ee *category.*

Number of staples	0 > 10	10	30	50	70	
Shoulder	15.3	49.2	27.1	8.4		%
Flank	11.9	45.8	35.6	5.1	1.7	%
Thigh	11.9	39.0	35.6	6.8	6.8	%

A wool containing mainly the *a* or finer staples or hairs is characteristic of the shoulders and flanks. About 90 % of the samples of shoulder and flank wool examined are more than half formed of this finer staple (155—280). In the samples from the flanks, the number of these finer hairs is somewhat larger than in the samples from the shoulders. Of the thigh wool about two-thirds of those examined have per sample from 155 to 255 of the *a* and finer hairs. Of all these parts of the body, the thigh wool samples showed the smallest content in the finest categories.

The thigh wool contains the largest content in *b* and *c* staples, and the flank wool the least. Wools containing more of *a* and finer staples have a smaller content in *b* and *c* categories.

Staples of fineness *d* are generally less numerous than those of *b* and *c* fineness and are found in larger quantity in the shoulder wool and in less quantity on the flanks. The thigh wool contains the greatest content in *e* staples; about half the samples (47 %) had more than 30 of these, while the samples of wool from the flanks have the smallest content of *e* staples; only 17 % had more than 30. The sample from the shoulders contains 27 %.

In respect of the *ee* staples they are less often found in samples of shoulder wool and in any case are found to a less degree than in the samples from the flanks and thighs. The greatest number are found in wool from the thighs.

By means of a microscopic examination the degrees of fineness may be estimated, on the basis of the percentage composition of the wool. For example, the following are the degrees of fineness of shoulder, flank and thigh wools:

Wools	d_1 and d_2	*e*	*ee*
houlder	44.07 %	27.12 %	28.81 %
nk	27.12	37.30	35.58
h.	22.04	32.20	45.76
th			

It will be seen that the degree of fineness *d* predominates on the shoulder wool, on the flanks, degree *e* and on the thighs *ee*. On the shoulder, 44 % of all the samples examined are of *d* grade, while *e* and *ee* are represented about equally. The wools of the flanks show *d* staples only in rather more than one-fourth of the samples examined while grade *e* is rather more prevalent than grade *ee*. More than ¼ of the samples of thigh wool examined show grades *ee* and *e*, the former being more common than the latter.

As the principal quality category of the fleece (*Hauptsortiment*) is taken that which predominates in the fleece, thus, if two of the three parts of the body under consideration (shoulders, flanks, thighs) have the same kind of wool this will be the principal quality of the entire fleece. If the three parts of the body have different qualities, the principal quality is represented by that of the flank as covering the largest surface. The principal grade of fineness is defined in the same way. 72.2 % of the animals examined proved to show respectively a principal grade of fineness of *e* and *ee*; 28.8 % had grade d_1 or d_2. Taking as a basis the results of investigations made as to the grade of staple fineness on the three parts of the body (shoulder, flank, thigh), data are obtained on the fleece uniformity. If the shoulder, flank and thigh wood have the same grade of fineness, the uniformity of the fleece is good. If two parts of the body only have the same degree of fineness, the uniformity is medium If the three parts of the body have different degrees of fineness, the fleece is not uniform.

In 39.0 % of cases the uniformity of the fleece is good, in 54.2 medium and in 6.8 % nil. As is usual with native sheep, a marked absence of uniformity in the fleece is rare.

From microscopic investigations on the fineness of the wool the following data may be deduced:

With 52.2 % of the samples examined, the shoulder wool is the finest; in 39 %, its fineness is intermediate between that of flank and that of thigh wool. In only 8.5 % of the samples the shoulder wool is the coarsest. 47.5 % of the flank samples are of the finest quality and 49.1 % are of a fineness intermediate between that of shoulder and that of thigh wool, and it is only in rare cases (3.4 %) that the flank wool is of the coarsest quality. The coarsest staple is predominant in 88.1 % of the thigh wool samples, and only in 11.9 % of those examined is the thigh wool quality intermediate between that of the shoulder and the flank wools.

7. — MEANS OF IMPROVING THE KARAMAN SHEEP.

The principal value of the flocks of Karaman sheep in Central Anatolia, lies in the fact that these indigenous animals, extremely primitive, are still able to live in this country, where the majority of other breeds of sheep cannot exist. They manage to get the best advantage from the meagre pastures of the highlands and are able to exist in spite of insufficient care and unfavourable climatic conditions. As a result of the requirements imposed by a harsh climat which the animals must be able to resist, a natural selection takes place, fact, only the most resistant meet these requirements. Their remarkable fru ity, and their use of coarse fodder, their power of resistance to unfavourable conditions of climate and of feeding, etc., their capacity for travelling long distances, are qualities which must be preserved. There are two ways in which these qualities may be improved and the yields increased.

It has been seen that the wools *e* or *ee* predominate in Karaman sheep. Turkey produces an excess of the wools *e* or *ee*, but the possibilities of their use are limited, and the profit made is very little. A few individuals have fleeces *d* or *cd* (d_1), which are much more satisfactory for manufacturing purposes and are accordingly in greater demand on the world market.

Similar conditions to those in Anatolia are found in the regions of Russia, where the breeding of fat-tailed sheep is carried on. The breeding is practised systematically with a view to the production of wools d_1, and d_2. Wools of this class would be, for Turkey, a much more important article of exportation than the wools *e* and *ee*.

This improvement could be carried out by a systematic selection breeding using rams with wool *d*. This, however, would take some considerable time, especially as rams with *d* wool are relatively few. The quickest way to obtain any result, would be cross-breeding, as practised in Russia, for the improvement of fat-tailed sheep. In Russia the good qualities of the indigenous sheep, and in part the production of fat in the fat-tailed sheep, have been by these means maintained. In Eastern Anatolia, the Kivirdjik sheep are largely diffused, and breeding experiments, carried out for some years on the property of the President of the State, show that this breed adapts itself well to the conditions of Central Anatolia. provided that the fodder is of moderate quality. In the Western provinces, as a result of the change in breeding policy which now favours an improved indigenous breed with wool of merino type, the rams of the Kivirdjik breed will be available for cross breeding with the Karaman ewes. On crossing the Karaman ewes with an *e* or *ce* wool with rams having a *c* wool, half-breeds may be obtained in F_1 generation, in which the quality of the wool would be improved, in the principal fleece quality category, by at least one class. At the same time an increase would result in a production to which the peasant farmer of Central Anatolia attaches great store, *viz.*, that of milk. The quality of the meat would also be improved by an application of this same policy.

The economic importance, from the side of wool production alone, of this change in the direction in breeding will appear from the following considerations. **Kemal** has valued the total wool production of Turkey at 18 million kg. It can be stated that about 70 % of these wools, that is, 12.6 million kg., comes from the Karamans. Taking as a basis the price of 40 kurus (piastres), paid in past years by wool spinning factories, it may be reckoned that the wool production of the Karamans represents a value of 5.04 million Turkish pounds (of 100 piastres). As the new method of breeding, using Kivirdjiks, allows an increase in production of 1 % in the first or at latest in the second generation, taking as a base the prices of the wools *d* and *e*, this would mean an increase of about %, or 1.7 million Turkish pounds. The increase would be even more, because ady at least one-fourth of the Karaman sheep have *d* wools, and this thd mean a progressive improvement towards the *c* wools. The wool obtained in this manner could be exported in much greater quantities than the *d* wool available at present, especially if the different classes were graded previous to export.

A great variation is found in the live weight of the ewes. The differences of weight are due chiefly to the fact that the lambs, born at different times, are taken away from the mothers at one and the same time, so that the younger animals are never able to catch up with the others. By adopting a more reasonable system of separation, a more equal development could be obtained. Naturally the variation in the milk yield of the ewes plays a certain part in the development of the lambs, a part conditioned by hereditary predispositions and by the feeding given in different localities, flocks and seasons.

As already stated, a too early mating or unsystematic inter-breeding have also an influence on the development of the animal. The mischief which results can never be repaired; but it can be avoided by changing the rams and delaying the serving of ewes not having attained their sex maturity.

Much would be gained by eliminating the period of scarcity, which the lambs have often to endure in summer, giving them an additional scientific food ration.

The growth capacity of the Karaman lambs is undoubtedly stronger than with the Karakuls, but full advantage cannot be taken of this owing to the unscientific feeding. The heavy losses among the lambs could be avoided by replacing unhygienic underground shelters by clay hutments, primitive, it is true, but providing sufficient air and light.

(*To be continued*).

Prof. Dr. W. SPÖTTEL
Director of the Zootechnical Institute of Ankara (Turkey)

Additions and Corrections

to be made in the article THE UTILISATION OF ATMOSPHERIC NITROGEN BY MIXED CROPS [*B*. No. 6 (June) and No 7 (July)].

In the 1st part (*B*. No. 6) :—

page 204 T, line 5, instead of Reiche, read *Reihe*

page 211 T, under Fig. 2, the following legend should be added : –

The white columns refer to yields obtained without additional nitrogen.

The black columns refer to yields obtained after the addition of 37.8 kg per hectare of nitrogen as sulphate of ammonia.

page 215 T, Note 3, para. 2, line 2, instead of the amounts of in the grass were considerable, read *the amounts of N in the grass were considerable.*

In the 2nd part (*B*. No. 7) :—

page 255 T, after the reference (55) read (Ref.)

*(56) THOMSON Arwid (1931), Wasserkulturversuche mit organischen Stickstoffverbindungen, angestellt zur Ermittelung der Assimilation ihres Stickstoffes von Seiten der höheren grünen Pflanze. — *Acta et Commentationes Universitatis Tartuensis* (*Dorpatensis*), A. XXI, 5, p. 1-108.

and therefore the references 56-85 should read references 57-86.

page 256 T, after the reference (86) read as (Ref.)

*(87) WINOGRADSKY S. (en collaboration avec Hélène Winogradsky) (1936). Étu
sur la microbiologie du sol, 8ème Mémoire : Recherches sur les bactéries re
coles des légumineuses. -- *Annales de l'Institut Pasteur*, Paris, Tome 56,
p. 221-250.

MISCELLANEOUS INFORMATION:—

XVIth Congress of industrial chemistry, Barcelona (Spain). 18-24 October, 1936. — As at all the previous manifestations, this Congress will conclude with visits to factories and excursions.

Lectures on present day problems will be given during the course of the plenary sessions by eminent experts, while, in the 19 Sections, numerous communications on all branches of chemistry will be presented and discussed.

Two prizes of 1000 *pesetas* each will be given to the best communications of a scientific nature considered valuable for advancing the progress of industrial applications.

For all information apply to the Society of Industrial Chemistry, 28 rue Saint-Dominique, Paris (7e).

BOOK NOTICES *

Atnaldo Luraschi, *L'Italia ed il suo pane*, 2 vols. (I: 453 pp. - II: 339 pp.) Rome, 1936, Federazione Nazionale Fascista Panificatori ed Affini.

In this important work, in 2 volumes, the « Federazione Nazionale Fascista Panificatori ed Affini » has collected articles and other writings by Arnaldo Luraschi published at various times from 1926 to 1933. It was thus intended to summarise and establish the scientific, technical and economic principles which animate the activities and purposes of the Federation in the three wide fields which are at the basis of Italian national economy, viz., production of wheats, flours and bread.

These two volumes; which treat the various questions of a legislative, economic and corporative order discussed by the Federation, constitute, together with the " Quaderni corporativi " (Journals of the Corporation) published by the same Federation, a collection of studies which will serve, within the Bread-making Corporation, as a guide to discussions and will facilitate the understanding of certain questions with which everyone is not familiar, but which should be understood by those whose duty it is to discuss them.

The work, as a whole, gives a very clear idea of the remarkable efforts made in Italy, during the last few years, to solve the question of bread production, both in respect of improvement of quality and of stabilisation of prices.

G. R.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

Bustinza, F. Elementos de agricultura, técnica industrial y economia. Madrid, [Autor], 1935. VIII, 503 p.

South-Eastern agricultural college, Wye, Kent. The Journal No. 38. 1936. London, Headley Brothers, 1936. 171 p.

General Agronomy.

Istituto di studi romani, Roma. La bonifica delle Paludi Pontine. Roma, « Leonardo da Vinci », 1935. XI, 330 p.

Ravenna, C. Chimica agraria. Torino, Unione tip.-ed. torinese, 1936. XII, 326 p. (La nuova agricoltura d'Italia. Enciclopedia agraria, diretta dal Sen. Arturo Marescalchi).

---

th * Under this heading appear short synopses of books received for review.

RUSSELL, E. J. Boden und Pflanze. 2 Aufl. Nach der 6. englischen Aufl, bearb. von K. W. Müller. Dresden, T. Steinkopff, 1936. XIII, 446 p.

SCHUCHT, F. Die Muschelkalkböden Mitteldeutschlands und ihre land- und forstwirtschaftliche Nutzung. Berlin, Reichsnährstand Verlags-G. [1935]. 426 p.

Plant Protection.

SCHWARTZ, und K. LUDEWIG. Der Gartendoktor. Schädlinge und Pflanzenkrankheiten ohne Vorkenntnisse erkennen und bekämpfen. Berlin, Verlag der Grünen Post, [1936]. [116] p.

Crops of Temperate Regions.

BASSI, E. Cerealicoltura. Torino, Unione tip. ed. torinese, 1936. XI, 278 p. (La nuova agricoltura d'Italia. Enciclopedia agraria, diretta dal Sen. Arturo Marescalchi).

SAKSHAUG, B. Beitedyrking. [Oslo], Kgl. Selskap for Norges vel, 1936. 148 p. [Cultivation des pâturages].

Horticulture.

PANTANELLI, E. La frutticoltura in terra di Bari Bari, Arti grafiche Laterza, 1936. 102 p. (Bari (prov.). Consiglio provinciale dell'economia corporativa. Sezione agricola e forestale. Collana di studi e monografie, n. 1).

REINHOLD, J. Die Gurkentreiberei in Gewächshäusern. Stuttgart, E. Ulmer, [1935]. 112 p. (Grundlagen und Fortschritte im Garten - und Weinbau, Hrsg von C. F. Rudloff, Hft. 12).

RHEINWALD, H. Gründüngung im Zwischenfruchtbau. Stuttgart, E. Ulmer, 1936. 64 p. (Schriften über neuzeitlichen Landbau, Hrsg. Ernst Klapp. Hft. 6).

TRENTIN, L. Orticoltura. 7ª ed. riveduta e corretta dal Dr. Alberto Trentin. Casale Monferrato, Ottavi, 1936. XII, 464 p. (Biblioteca agraria Ottavi, v. 45).

Viticulture.

SCHELLENBERG, H. und A. SCHELLENBERG. Der Weinbau. Leitfaden für den Unterricht an landwirtschaftlichen Schulen der deutschen Schweiz und Lehrbuch für den praktischen Weinbauer. Hrsg. vom Schweizerischen Landwirtschaftslehrer-Verband. Frauenfeld, Huber & C°,, 1936. (Landwirtschaftliche Lehrbücher).

Rural Engineering.

PASINI, C. Topografia rurale. Torino, Unione tip.-ed. torinese, 1936. V, 143 p. (La nuova agricoltura d'Italia. Enciclopedia agraria, diretta dal Sen. Arturo Marescalchi).

Agricultaral Industries.

BALTIMORE ASSOCIATION OF COMMERCE. MARYLAND DEVELOPMENT BUREAU. The agricultural industry of Maryland. Baltimore, [1934]. ii, 332 p. Polycopie.

Various.

FIORANI-GALLOTTA, P. L. Igiene rurale. Torino, Unione tip.-ed. torinese, 1936. VI, 206 p. (La nuova agricoltura d'Italia. Enciclopedia agraria, diretta dal Sen. Arturo Marescalchi).

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

THE ACTION OF RADIANT HEAT AND LIGHT RAYS ON THE LIFE OF PLANTS. HEATING AND FORCING PLANTS IN THE OPEN AIR

(*Part I*)

The problem of heating, the object of which is to maintain the most favourable atmospheric conditions for the life of man, animals and plants, has now become of great technical and economic importance in relation to the productive capacity of stock-breeding and to intensive and specialised cultivation.

The theory of a new system of heating of plants in glass houses and in the open air is based on the application of the physical laws of radiant heat (invisible infrared heat rays) which are part of the laws of light.

EFFECTS OF HEAT AND LIGHT ON PLANTS.

Heat and light are among the most important factors which influence the growth of plants. By modification of these two factors, taking into account the sum of specific radiations emitted by the sun, the amount of absorption by the soil, the biological cycle of different plants, humidity and environmental conditions, it is possible to influence effectively the whole cycle of plant development: germination, activity of the diastases, respiration, assimilation, etc.

For a plant to live and fructify while reaching the maximum of well-being, that is, the highest degree of chlorophyll assimilation, it is necessary to secure the most exact balance of the effects taken as a whole, as between light and temperature.

Numerous trials carried out in the Cheshunt Research Centre (England), in the Wageningen Laboratory (Netherlands), at the Universities of Copenhagen and Oslo, at the " Experimentalfältet " in Stockholm, show with remarkable clearness that, for each degree of intensity of light, there is one and only one temperature in which the mechanism of plant assimilation works most efficiently. The ratio light: heat, to which may be added humidity, can only be attained with difficulty by the farmer who follows the earlier methods of economic regulation of ambient heat. What is most important is not the quantity of heat given, but the *temperature reached experimentally*, such as will maintain the most suitable internal temperature within the organs of the plant

With a rise of temperature of 8 to 10° C., it may be said in general, that the rapidity of the chemical reactions taking place in the plant is accelerated twofold. The variation curves of the principal physiological functions of plants in relation to the temperature show that the *rapidity of action of isolated diastases, chlorophyll assimilation* and *respiration* present a thermal optimum; on the other hand, for transpiration, which increases in function of the temperature, there is no optimum, as the temperature causing death is reached before transpiration diminishes. However, in respect of growth in general, the various temperatures (25 to 40° C) which are optima for the different functions are too high, and injurious in a general way, for plants. In each period of development, the optimum temperature is usually well below 30° C and appears to vary between 18 and 23° C. On the other hand, beside the differences in optima temperatures noted for various plants, the factor of *cooling* should be taken into account and also its influence on the plants which may *modify* completely the trend or pace of further development. The systems based on the treatment of seeds and plants to accelerate growth are well known: vernalisation or jarovisation (LISSENKO, etc.) (1), refrigeration of fruit trees in pots, the treatment of flower bulbs, etc., are commonly used in agricultural practice. Another factor that should be also taken into account is the effect of the cooling due to the intense nocturnal radiation in tropical and sub-tropical countries, accompanied by a certain precipitation of water caused by the fall in the temperature of the air. This is one of the most important factors in the rapid growth and fructification of numerous plants in hot countries. It may also be said that the effect of cold on the biological cycle of plants is as important as that of heat. We are still far from ascertaining the combination of the various factors and symptoms by which it will be possible to regulate the growth of plants as we desire, and detailed investigations are still being carried out on the various economic systems of warming plants and the simultaneous use of different light rays and of cold. It is certain that the recent application of electricity and radiant heat at low temperature (radiant panels) gives a new aspect to the question and opens up new possibilities in the field of agriculture and live stock economy (heating of sheds, pens etc., stock-breeding, poultry breeding).

Heat and various forms of heat. — The temperature level established between two bodies not being at the same temperature, so that all the calories lost by the warmer body are completely absorbed by the colder body, may be brought about in various ways and is the basis of all heating systems.

The heat which is transmitted from one point to another of the same body *e, g.*, through metals, liquids, etc., (steam heating tubes placed in the ground, electric current) is called *conduction heat.* Transmission takes place slowly and is dependent on the nature of the body heated (good and bad conductors).

On the other hand, if the heated body is plunged in a colder fluid (gas or liquid) exchange is produced which transports the heat by *convection.* In contact with the hot surface, the fluid as it becomes heated diminishes in density, expands and rises to the surface, while other cold layers take its place. In this case, the rapidity of the thermal exchanges depends on the mobility of the heated fluid and the greater or less degree of facility with which this exchange is produced.

---

(1) The numbers in brackets refer to *Publications consulted* which will be found at the end of Part 2 of this article.

The third method of heat transmission is by means of radiation without any material agent. Radiant heat (for example, sun heat) is comparable to light; it is invisible to the eye, is transmitted freely, at the same speed as light, through air and space which are, for it, practically transparent. On the other hand, bodies opaque to these radiations absorb it and become heated. For example, a surface radiating at 300°C gives instantaneous heat long before the air has transmitted it by convection. All bodies emit radiant heat which increases in function of the temperature; when thermal equilibrium is reached between several bodies together, they radiate to each other the same amount of heat they receive.

The total quantity of heat transmitted by natural convection and radiation between a moderately hot body (absolute temperature T_1) and the air with which it is in contact, assumed stationary, at the temperature of T_2, may be sufficiently nearly expressed by the equation:

$$Q = (K_1 + K_2 Y)(T_1 - T_2)^{1.25}$$

in which Y is a function of T_1 and of T_2. In tracing the curves which give Y as a function of $T_1 - T_2$, for the various T_2, it will be seen that Y varies very little and may be considered as almost constant for a given temperature of the air t_2, and in the interval 30° — 80° C. of $T_1 - T_2$. In this interval one may even write:

$$\frac{Y}{\text{average}} = 0.408 + 0.0044\, t_2$$

WARMING PLANTS.

In the open air. — The surface of the soil during the day receives from 1.3 to 1.4 calories per minute per square centimeter, in full daylight. A small part of this heat is reflected into space, while the greater part is absorbed, hence the heating of the soil and of the surrounding air in contact with hot bodies. The soil may thus, in the sun, reach 50 to 80° according to circumstances. The heating of living plants is much less marked as they react by transpiration, and the temperature of the green organs, owing to this method of cooling, remains close to that of the surrounding air. During the night, the intense radiation of heat by the soil and the plant causes a cooling which is considerably greater in clear nights (damage caused by frost), while an overcast or cloudy sky forms a shield which limits the radiation from the soil.

The important and complex question of research on the radiation of heat and chiefly on day and ***night*** radiation of the atmosphere, from the point of view of warming plants in the open air, has been treated by BOUTARIC and other investigators (2). It is not possible, here, to go too deeply into the question as a whole series of associated factors should be taken into account, including the hour when the temperature is maximum, the height of the sun and the annual cyclical evolution of the various meteorological factors of climate.

Temperature measuring apparatus. — It is important to measure the temperature by means of suitable apparatus. The temperature of the soil may be measured easily with a mercury thermometer or thermo-electric batteries. In the open air, however, measurement of sun temperature is of no value in relation to that of the air and of the plant and, to obtain more accurate data, the thermometer should be placed in direct contact with the surrounding layer of air. Instruments of special interest are in use such as the the type of thermometer described by MISSENARD in the review, *Chauffage et Ventilation* (Paris, 1935, No. 1); but types of apparatus based on the determination of calorific compensation, that is, such as are capable of radiating heat and ridding themselves of heat, in a degree as close as possible to the radiation of the body in question (animal or plant), are those which give the best results. Such, for example, is the eupatheostat, consisting of a vacuum sphere, blackened on the outside and containing a volatile liquid heated by electric current to a given temperature, with an insufflaror of deformable metal the movements of which are registered by an indicator. The heat supplied by the current being constant, the pressure in the interior is directly conditioned by the losses in heat of the sphere, due to radiation or convection.

Glass houses heated by sun only. - It is well known that the radiant heat of the sun is composed chiefly of short wave calorific radiations which easily pass through glass, penetrate the glass house and heat the soil which, in its turn, radiates heat at a temperature much below 100°. This heat radiation of the soil is of long wave length and cannot penetrate the glass, hence the possibility of producing under glass a heating considerably greater than in the open air, while at night, the closed glass house loses its heat only by conduction through the thickness of the glass and the soil cools much less than out-of-doors.

Heat supply. - In a glass house this is provided generally: (1) by means of hot air using improved thermosyphon systems; (2) by means of steam; (3) by ventilation with moistened air; (4) by electric current. But these systems are imperfect and costly as the heat is transmitted by convection.

In a glass house heated by the thermosyphon system, in which hot water is circulated by convection in pipes coming from a stove and returning to it after partial cooling, the pipes radiate a little heat, but they chiefly heat the air by contact and it is the entire atmosphere that is heated by convection. The thermometer registers both the temperature of the surrounding air and that of the plants. On opening the glass lights, the warm air escapes and the glass house and plants cool. The great defect of this system, which is used in all glass houses at present, supplemented to some extent by a heating of the soil by conduction, utilising pipes laid in the soil the surface of which is thus heated, is that it employes the air as a vehicle. As result we have the necessity of heating all the surrounding air, which transmits a very small amount only to the plant, and further the inevitable losses of heat due to opening the glass house and renewing the air. It is known that the quantity of heat transmitted per unit of time is given by:

$$Q = KS\,(T - T_o)^{1.23}$$

that is, taking T as the absolute temperature of the radiating surface, T_0 equal to the absolute temperature of the surrounding air, and S as the surface of the radiator, the heat transmitted is proportional to the surface of the radiator and to the power of 1.23 of temperature variation, the coefficient X being dependent on the surface and the extent of its roughness.

Direct transmission of heat by radiation at low temperature. Heating plants in glass houses and the open air by means of radiant panels. — The direct transmission of heat by radiation from the source of heat on to the body to be heated appears, *a priori*, as the most advantageous, as it is based on the principle of transmission of solar heat which traverses the air without heating it. These rays all obey the same physical principle and, if, for example, a spectrum is formed of a lens and a prism, the calorific rays are refracted exactly as light rays and according to the laws of optics. Heating is nil in the violet, blue and green, slight in yellow and orange and intensifies as red is approached, the highest heating point being outside the spectrum and originating from the infra-red rays, *less refrangible than the red rays.*

The use of high temperature heating, such as was practised in earlier systems, has many disadvantages: it carbonises the dust and dries the air, it is dazzling, burning at certain points and cold at others. Compared to systems of diffused heating in which low temperatures may be employed, it has all the disadvantages, in respect of lighting, of a very powerful and concentrated source as compared to an infinity of other sources of lower intensity (luminous ceilings, for example). Radiant heat at low temperature should, therefore, be utilised At first sight this appears to be a contradiction. All sources of heat radiate energy through space. In the last system, the infra-red rays emitted by surfaces at low temperature (radiant panels) are reflected according to the laws of light. Heat is thus diffused in a given locality just as would be light rays emitted by a luminous ceiling. The dark heat is transmitted in a straight line and is reflected differently according to the substances in its path. Glass reflects infra-red rays, which is a great advantage for heating glass houses. The air being permeable by these dark rays, is traversed by them without heating; the rise of temperature is due solely to the contact of the air with the heating panels and the walls touched by the hot rays. In this way there is obtained, on an extensive surface, an uniform emission of rays which heat the animal or plant at low temperature, this temperature being perfectly uniform in all parts of the green house, etc.

Under such conditions, the plant attains its maximum well-being. The air is no longer in movement nor is it dessiccated or filled with dust; also the hygrometric condition and the temperature remain constant in all horizontal zones between the ceiling and the soil. The walls and ceiling are warmer than the air, they heat the air instead of being heated by it. The output of the radiating panel is dependent on its colour and on the composition of the body heated. On the other hand, the energy radiated is in proportion to the surface of the zone of emission and, as the temperature must be kept low, it is possible to regain on the temperature what is lost on the surface and to radiate an equal amount of total energy. In contrast to heating by convection, radiant heat raises directly the temperature of the walls and flooring, these being at a higher temperature than the surrounding air. Hence the living bodies, found therein, no longer give up their heat to the surrounding walls and, consequently, do not suffer from cooling. This brings us to the law of comfort of PETER-HOFFER: « To breathe fresh air within warm walls ». This law is, with all due proportion, exactly the same for the processes of plant life.

The impression of comfort felt at 18°C in a locality warmed by convection, where warm air is breathed, is reached at 15°C with heating by radiant panels, which explains the economy in fuel realised utilising low temperature radiation; an economy amounting to 25 %. The formation of columns of hot air, called « thermals », is avoided, it is possible to ventilate without a noticeable loss of heat and, at the same time, heating surfaces and visible pipings are no longer needed.

From the point of view of installation, the radiant bodies (heating panels, etc.) are nothing but serpentine steel plates set in the concrete. They are fed by a hot fluid, the production and distribution of which resembles that of ordinary heating by radiators. It is by this new process, comparable to what takes place when the solar rays strike the soil after passing through the air without noticeably heating it, that « heating by radiant panels » has been applied. The method will be described at a later point

In this way, it is possible to influence the biological cycle of plants by producing, in certain districts or climates, the conditions necessary for the development and forcing of plants, or to prolong, in a given climate, the time during which the plants may yield their products satisfactorily. Thus, flowers, fruits and early produce may be obtained in the open air in the coldest and most varied climates and, also certain plants of hot climates may be brought to maturity in temperate countries with relatively small cost, seeds may be obtained, and various forage plants or even cereals sprouted for forage may be produced intensively in cold countries (SPANGENBERG process) (3). It is also possible, by this system, to increase the production of young forage plants richer in phospho-proteic substances (TOMMASI) and to obtain several cuts, using fertilisers and irrigation, or, within doors, by means of processes which modify the SPANGENBERG method, using moveable carriers and shelves containing a certain quantity of well watered, renewable soil.

In fact, besides the elements which should be made available to plants, by the soil, the air plays an indispensable part in the assimilation of carbon from CO_2 and in the plant metabolism. The excessive humidity accumulated in glass houses by transpiration favours the development of cryptogamic diseases. The stagnant and vitiated air in glass houses should be renewed while avoiding sharp falls in temperature. Whatever the environmental conditions may be, flowering and fecundation of plants require plenty of air and light. The building up of 1 gramme of dry matter requires 400 to 700 grammes of water which passes through the plant from the roots to the leaves. Great discretion should be shown in the use of water. The plant should not be drowned when only showing a few half opened shoots, and excessive irrigation should be avoided at the very important period of fecundation or when the fruit is on the point of maturity. The degree of humidity in the air is kept constant by repeated syringing and watering, which should be increased with the heat of the sun. These operations are carried out indirectly by distributing the water on the pipes or other hot surfaces where it evaporates.

FORCING PLANTS.

Light, heat and moistare are the principal factors in forced cultivation. Left to itself, in a climate where it finds all the conditions essential to its development, a plant begins its growth in the spring when the temperature rises above a certain degree. A plant, therefore, may be grown or kept in a glass house by providing it, artificially, with the quantity of heat normally provided by nature. As has already been said, it is far better to produce this environment in the open air where the plants benefits by the natural conditions of light and vegetation. A plant, left to itself, grows intermittently at first and, during this period, may suffer from possible returns of cold before reaching the period in which the temperature necessary for its life is constantly maintained. One method consists of giving, from the beginning of growth, not sharply, but slowly and progressively, the temperature most favourable to the development of the plant. This method is excellent as it shortens the intermittencies at the start; no artificial heat is required until the gathering time and it is particularly adapted to forced crops. If a considerable advance and fruits out of season are required in an ordinary glass house, heating apparatus must be used during the whole period of development of the fruit by bringing the confined atmosphere of the glass house to the temperature which the fruit would properly find in the open air if it matured under ordinary conditions. In nature, the temperature most favourable to flowering is not the best for fecundation, and the degree favourable to the formation of the stones and pips is different from that required for maturation. It is necessary to operate rapidly, but without too much haste, as an untimely wave of heat may render all efforts vain Hence certain rules established by horticulturists: (1) Heat less at night than in the day (repose of plants and aeration); (2) Never heat the plants abruptly when forcing, but accustom them gradually to the temperature required; (3) Heat the soil and atmosphere so that the growth of the plant follows a course corresponding exactly to its requirements (bottom heat given to potatoes should be more than that given to haricot beans); (4) Proportion the intensity of the heat to the nature of the plant, to the humidity of the soil and the atmosphere, and to the activity of vegetation. There is a complete change in these methods when the principle of *radiant* heat is applied.

ACTION OF LIGHT ON PLANTS AND CONCOMITANT ACTION OF RADIANT HEAT.

The action of heating plants by radiation as proposed by BIGEAULT (of the firm Nessi Bigeault, France) may be made more efficacious by using the direct light radiation of the sun or of suitable lamps. It is no longer necessary to surround the plant with warm air, but rather to supply it with fresh air and light rays rich in long wave calorific rays which do not heat the air through which they pass. The green plants capture a part of the white light of the sun which is used by the plant for the effecting of water reduction followed by combination with the carbon anhydride and the air, so as to obtain subsequent formation of carbohydrates (simple sugars, saccharose, starch, cellulose, etc.) and giving off of oxygen. The white light rays have a wave length varying between 0.8 μ (red) and 0.4 μ (violet). The rays active for photosynthesis are those absorbed by the chlorophyll and, among these, the most active are the red and infra-red rays, which supply the most energy. The air enriched by carbonic gas (up to a maximum of 10 %, hence the importance of a carbonic fertiliser) increases its photosynthetic yield, at equal conditions of lighting; in normal light conditions, the green plant absorbs 10 to 20 times more carbon anhydride that it gives off in respiration. The nutritive equilibrium of the plant will show a deficit with less than normal lighting, while the photosynthetic activity diminishes with excessive lighting. The optimum lighting varies according to the species, age, organ, temperature and conditions of progressive adaptation of plants. The part played by light in assimilation is not limited only to the building up of carbohydrates; ionising light, and chiefly blue, violet and ultra-violet light (0.28 = 0.34 μ) are necessary to the plant for the formation of albuminoid substances. Light, also, is indispensable for the formation of certain organ-forming bodies such as the rhizocaline which is necessary for root formation, and to the formation of a series of compounds with an oligosynergic action indispensable to animals, such as ascorbic acid, the various vitamins, etc.

The excess radiant energy absorbed and not utilised in photosynthesis sets up heating in the plant to which it reacts by transpiration (vaporisation of water, concentration of salts in the protoplasmic liquid), a greater absorption of soil water by capillarity and a diminution of temperature as a function of the diminution of salts (nitrates, etc).

In the higher plants growing in the soil, the effect of a unilateral lighting displaces, towards the lighted cellular wall, the chloroplasts or carriers of chlorophyll, then, if the light is too intense, the chloroplasts arrange themselves in lines parallel to the light rays, so that the plant, in very diverse external lighting conditions, succeeds, within certain limits, in exposing each of its chloroplasts to nearly the same degree of lighting. An accessory consequence of photosynthesis is to be found in the sleep movements performed by plants (leaflets of trefoil which close at night and open in the day, etc), in the turgescence or flaccidity of the motor cells more or less gorged with water by osmosis according as they become richer or poorer in soluble salts as compared with neighbouring cells. Another important instance of light acting in a very complex manner, is its influence on the growth of plants and on the displacement of organs due to inequalities of growth (phototropism). Consequently the impulse to cell division, the formation of new cells and the increase in size of cells are mainly to be referred to this action of light. While assimilation requires large quantities of luminous energy, flowering regulated by photoperiodism does not need supplementary quantities of light from the moment when assimilation is satisfied.

Duration is the principal factor, also, if the day affords about equal periods of light and obscurity alternately, the plant suffers, unless the periods of lighting and obscurity become very short (flashes of 2 seconds), which increases the yield.

As has been said above, experiments carried out at the Cheshunt Research Centre (England), at the Wageningen Laboratory (Netherlands), the Universities of Copenhagen and Oslo, the « Experimentalfältet » of Stockholm, have resulted in the conclusion being reached that, for a plant to live and fructify, it should attain its maximum of well-being, that is, its maximum degree of chlorophyll assimilation. For this there should be a *determined relation between the luminosity of the atmosphere and the temperature,* and for each intensity of light there exists *one and only one temperature* in which the building up of plant material attains its maximum

The concomitant application to plants, of solar light and other luminous sources, taking account of the heat supplied and of the humidity, has many very complex aspects, above all in respect of the economic application of the forcing of industrial crops. In the following section of this article this subject will be treated in fuller detail, describing experiments now in progress in the various research institutes and stations, as well as some general principles which, in our opinion, should be followed.

(*to be continued*) G STAMPA

CEREAL SELECTION IN COUNTRIES OF THE MEDITERRANEAN BASIN: TURKEY (1).

Asia Minor, which now forms the greater part of Turkey, constitutes a sort of bridge uniting Europe with the vast continents of Africa and Asia. It was by this bridge that not only the warlike conquering peoples entered Europe, but also the pacific penetration of cultivated plants took place. Asia Minor is the meeting point of many plants of various origins as they become generally diffused; a process on the one side natural, that is, in obedience to the laws of nature, and on the other artificial through the action of man. After having undergone this first selection, these plants reached Europe bearing traces of the influence of man and the climatic conditions of the countries through which they passed.

Among the countries of the Mediterranean basin, Turkey, from the climatic point of view, occupies a special place. The Mediterranean climate, which is characterised by a mild damp winter, is limited to a zone varying in width along the coasts of the Mediterranean and Black Sea. The remainder of the country, that is, the Anatolian high plateau, is under the influence of a definitely continental climate.

---

(1) Articles on cereal selection in Italy, Tunisia, Algeria and Greece respectively have appeared in this *Bulletin* as follows. 1934, No. 12; 1935, Nos. 7 and. 12, and 1936, No 1.

Climatic bases. — Five different climatic regions may to be distinguished in Turkey: (1) the southern coast of Anatolia with a hot and subtropical Mediterranean climate; (2) the coast of the Aegean Sea and of the Sea of Marmora, characterised by a cooler Mediterranean climate and subject to the Etesian winds blowing regularly from the north-west; (3) the Pontic coast, characterised by heavy rainfall throughout the year; (4) the interior of Anatolia with a continental character becoming more pronounced towards the east; extreme drought, aggravated by an atmosphere with very little moisture and a very severe winter resulting in a twofold arrest of vegetation, one in summer owing to lack of moisture and the other in winter owing to the cold, the climate of the district of Konya having barely 200 mm. of rainfall per annum, approaches desert conditions; (5) lastly the climate of East Anatolia. This has not yet been thoroughly studied but is also continental, though as the rainfall is adequate (500 to 600 mm.) it is very suitable for cereal cultivation.

From the point of view of rainfall, 3 zones may be distinguished, demarcated by three concentric ellipses: (1) the interior zone including the capital, Ankara, with an annual rainfall varying between 200 and 350 mm ; (2) the intermediate zone with 300 to 500 mm., (3) the external zone, consisting of the coastal regions and East Anatolia with 500 to 600 mm. There are also the clearly defined zones of Adana, Smyrna and Lake Van, for example, where the rainfall is even greater. The Pontic coastal line near Trebizond, has a more abundant rainfall exceeding 1 000 mm. At Rise the rainfall reaches 2 500 mm.

The greatly simplified scheme of the climates in Turkey, given above, shows the great diversity existing within this relatively limited area.

Agriculture in the country is adapted to these climatic conditions. There are 3 types of agriculture: the Pontic type, the type of the Centre and East Anatolia, and the Mediterranean type. This last is of the most interest from our point of view, and is found along the whole of the coast line washed by the Mediterranean, the Aegean Sea and the Sea of Marmora. The mild and damp winter permits continuous vegetative growth and is favourable to the cultivation of winter cereals. These are sown in autumn, benefit by the spring rains and ripen before the summer drought has reached its maximum. The olive and carob, trees characteristic of the Mediterranean, which require very little water, are grown without irrigation. The high temperature of the southern coast and the possibility of irrigation permit the cultivation of cotton and sugar cane. Stock-breeding is also of the Mediterranean type with a predominance of sheep and goats and nomadic pasturing throughout the whole year; the meadow land in the plains is utilised in winter and the pastures on the high plateaux in summer.

The Pontic zone is characterised by maize growing requiring, in non-irrigated land, rainfall distributed throughout the growth period. The central zone of Anatolia is favourable to the cultivation of summer cereals.

The diversity of climate is of the utmost importance for the cereal breeder and requires decentralisation of work and adaptation to conditions in various zones. On the other hand there is a circumstance which affects selection work adversely. This consists in the general type of Turkish farming which the Russian scientist ZHUKOVSKY, in his admirable work on agricultural Turkey, has described as an " oasis type ". The very broken nature of the relief of the land, the sparsity of population living in settlements often very distant from each other and separated by uncultivated regions or impassable mountains, the need for collecting at points where water is available to maintain life, all this has contributed towards giving Turkish farming a scattered and isolated character such as is found in the desert and is particularly characteristic of the Sahara. These agricultural centres have often a special climatic and ecological nature. The work of producing varieties suitable to this diversity of conditions is extremely difficult for the cereal breeder and is only possible in part. On the other hand it is this " oasis farming ", favourable as it is to the production and preservation of a great diversity of plant forms, that makes Anatolia a veritable treasure house for the breeder.

Importance of cereal growing. — Turkey is a country with a definitely agricultural character and particularly in respect of cereals; of the 6.5 million hectares of cultivated land (and 1.25 million hectares cultivated with fruit, vines and olives) nine-tenths, that is about 5.75 million hectares, are devoted to cereals. Among these cereals wheat (3 million hectares) and barley (1.5 million hectares) are of outstanding importance in comparison with other cereals and, in general, with other branches of agriculture. Barley is an important article of exportation; There is, on the other hand not yet sufficient wheat to supply the requirements of the country itself. The Government is most anxious to render the country independent of imported foreign wheat, and from this point of view, selective breeding should be a matter of first importance.

Organisation of crop improvement. — This is in the hands of the State. It could hardly be otherwise in a country where land ownership on a large scale – which always stimulates technical progress – is rarely found and where agriculture is still in the primitive stage. A Crop Improvement Service has been in existence for 10 years. The extremely varied climatic and ecological conditions of the country necessitate the decentralisation of this Service, and many regional stations have been established, definite regions and schemes of work being assigned to each station. With a view to ensuring a homogeneity and uniformity of direction to selection work in Turkey, a plan was formed for establishing a central organisation for the whole country. The working out of the scheme was entrusted to the Agricultural Institute of the University of Ankara. This body acts as co-ordinating the work of the local stations and directs, on the same general lines, the Service of comparative trials, multiplication and distribution of good varieties. In addition, the work of this central organisation, under the direction of Professor CHRISTIANSEN-WENIGER, has a purely scientific orientation. The regional selection Stations functioning up to the present are the following:

(1) *Yerilköy*, in Thrace, is engaged in selective breeding of cereals, forage plants (lucern, melilot, vetches, sainfoin), leguminous plants (chick peas,

beans, lentils), castor-oil plant and poppies for opium production. This Station possesses a fairly well equipped laboratory where tests are carried out in bread making and the baking quality of flours. The laboratory is also at the disposal of all the other Stations in the country. The Station is directed by the well known Turkish geneticist, MIRZA GOKGOL (HACIZADE), who has made accurate analysis of the wheat varieties of the country which forms a valuable basis for all further work of selection and hybridization.

(2) *Adapazari*, is situated on the north-west coast of Anatolia, and undertakes work on maize, wheat and potatoes.

(3) *Nazilli*, in the Smyrna region, is occupied with cotton, wheat and barley.

(4) *Adana*, on the southern coast of Anatolia, deals with cotton, wheat, leguminous and oil yielding plants.

(5) *Eskisehir*, in central Anatolia: wheat, barley, oats, forage and leguminous plants.

(6) *Ankara*, in central Anatolia: wheat, barley, rye, lucern, sainfoin.

(7) *Antaya*, in southern Anatolia: coffee, banana and citrus plants.

(8) *Maltepe*, near Constantinople: tobacco.

In 1936, three new stations will begin work and will be devoted to the cultivation of rice, textile plants, and tea, respectively. The net-work of experimental fields for testing new varieties, is still very limited, but will be increased as soon as possible. Up to the present, there are 3 principal and 6 secondary trial fields. All these institutions come under the Ministry of Agriculture, except the Tobacco Breeding Institute which is under the Ministry of Monopolies.

There is, in addition, an establishment for sugar beet seed production connected with the sugar factories. Eastern Anatolia, up to the present, is without a plant improvement station, but provision has been made for establishing two stations, one of which, at Erzeroum, will soon be functioning.

It will be noted that there is thus a distribution of work, which was planned by the IInd Congress of Turkish Plant Breeders, held at Ankara in 1932. This Congress, which is in itself proof of the existence of collaboration, also established the bases for further collaboration and uniform regulations for the whole country in respect of comparative tests and estimation of results. The pedigree records, observations, card-index of varieties are uniform and organised in such a way as to ensure continuity even where there is a change in the direction.

The multiplication of new varieties is carried out directly by the Improvement Stations or under their permanent supervision, by the State farms and by private farmers. As it would be difficult for the small farmer to purchase and test new varieties, these are distributed in exchange for an equivalent quantity of ordinary seed. Selected seed is under compulsory inspection.

Economic importance. — Turkey, in respect of selection, has an intrinsic importance somewhat difficult to estimate, consisting actually in the richness of the country in different forms of cultivated plants. This importance is not limited to the country itself, but is a factor of international significance, as Anatolia should supply valuable genes to the whole world. For example, genes are found determining precocity, resistance to drought, high content in chemical energy, immunity to cryptogamic diseases, etc. In the hands of plant breeders these genes constitute a capital of immense importance. Turkey, in fact, already for some considerable time has provided varieties which are distributed throughout the whole world. Mention may be made first of: Koubanka, hard wheat (*Triticum durum hordeiforme*), diffused in Russia and thence introduced into North America; *Arnautka*, another hard wheat; *Poltavka*, a soft, awnless wheat; and *Turke*, another soft wheat very common in North America (for example, in Nebraska and Kansas, it occupies 82 % of the sown wheat area); *Saragolla* (Sarkelle in Turkish), a hard wheat well known in Southern Italy.

The Russian scientists have mainly been engaged in the study of the diversity of varieties of plants cultivated in Turkey. The material assembled, analysed and described by Professor ZHUKOVSKY and his collaborators in their excellent work has been carefully studied in the Russian experiment Stations. This work has made known the varieties resistant to fusariosis, which are of special interest to the Russian breeder including in particular the *asiaticum* type of hard wheat. The type of *Indo-European* soft wheat appears to be important for cultivation in the " Nordic " regions. This type reacts strongly to the longer days and the growth period may be reduced by 20 days. There is besides the interesting and novel fact of other Turkish varieties of wheat which react in an inverse manner to the longer days: the period is prolonged instead of diminished.

Selective breeding is extremely important for Turkey itself. In respect of wheat growing, which dominates agricultural economy in the country, full advantage should be taken, by means of selective breeding, of the very favourable conditions existing in the greater part of the country for the production of first quality grain which, even during the crisis, has been in constant demand on the world market. Selection in Turkey has already resulted in varieties yielding flour of high baking value and all efforts are directed towards producing varieties entirely satisfactory from this point of view. This result is the outcome of work in genetics exclusively, while increase in yield may also be obtained through improvements in agricultural technique. The work of selection is absolutely necessary for standardising cereals which, it its turn, is no less essential to remunerative marketing of the crops. Cultivation of selected varieties will enable Turkey to export considerable quantities of wheat of first quality and homogeneous in type. It would not be difficult, by combining selective breeding with more scientific farming, to double the average yield which, up to the present, has only attained the modest figure of 7 to 9 quintals per hectare.

One result of selective breeding is to render the harvest more regular. Selected varieties well adapted to local conditions are more resistant to unfavourable weather conditions which cause such wide variations in yield., in fact, wheat production in Turkey which is on an average 2.5 million tons, may fall, in a year of cold or extreme drought, to 1.5 million tons and may reach 3 million tons in a good year. This margin between the maximum and minimum production, so disastrous for agricultural economy, is reduced by employing new varieties. The differences between the various local climates are however very great, and in addition there are periodical variations in these local climates. The question therefore, arises whether it will be possible to find a variety which has sufficient adaptability to succeed in every year. Trials have been made on a large scale to solve this question whether, under the special conditions in Turkey, it is not preferable to sow an artificial mixture of 3 or 4 selected varieties instead of only one variety. These varieties should correspond to each other as far as possible from the point of view of early ripening, satisfactory development, baking quality, etc, and should be chosen so as to guarantee the success of one or other of them, even under the most extreme conditions. In this way the security of the harvest will be increased, even if at the expense of quantity. It would, naturally, be no easy task for the breeder to compose such an optimum mixture.

In respect of barley, in view of the uncertainty due to summer droughts attending spring sown crops, the principal problem lies in establishing a variety which, although winter sown, will be suitable for brewing.

Owing to the production of winter varieties resistant to cold, oats are destined to occupy a much more important place than they have up to the present. Their use as forage may involve very important new possibilities.

Introduction of foreign varieties. — At the Yesilköy Station, the introduction of foreign varieties likely to prove successful in Turkish conditions, was from the first considered with a view to making available to farmers as soon as possible varieties superior to those existing in the country. Eight years ago, among a series of wheat varieties, the famous *Mentana*, produced by STRAMPELLI, was introduced and tested. This variety has become popular with farmers, and quickly spread throughout the coastal regions of western Anatolia so that now one-third of the wheat fields in the regions of Manissa and Soke, and one-eighth in that of Balykessir, are sown with this variety. In these regions *Mentana*, in contrast with the native varieties, does not suffer from lodging or rust. In other regions, notably in the part of the country south of the Taurus Montains this variety is also resistant to black rust, but unfortunately, it is subject to attacks by various insects, so that in this case varieties of hard wheats resistant to these insects are preferred. On the other hand, *Mentana* and certain varieties introduced from Cyprus, owing to their extreme precocity, escape the ravages of *Eurygaster integriceps*, a very destructive insect in Southern Anatolia. Generally speaking in respect of cereals it has been considered preferable to abstain from introducing foreign varieties and to concentrate entirely on improving national varieties. With regard to cotton, on the other hand, recourse has been had chiefly to varieties introduced from abroad.

Breeding from native varieties. — American and European breeders have been compared to those who try to obtain juice from a lemon which has already been squeezed dry. Varieties of cereals as a whole, after centuries of natural selection and artificial breeding by farmers and to still greater degree by professional breeders, have lost elasticity owing to impoverishment in genes, so that the introduction of primitive varieties carrying fresh genes is imperative. In Turkey the reverse is the case. In Anatolia, the wheat fields contain a remarkable richness of forms. It is difficult to find a field which does not contain not only different forms and varieties, but also different species and genera. The wheat fields are always invaded by rye and in places also by forms of cultivated oats. The miture of various species of wheat is a general phenomemon. As to the small species, agricultural and botanical varieties, and forms composing a field of grain, their diversity is astonishing. This extraordinary polymorphism, though undesirable from the point of view of the practical farmer, is for the breeder a phenomemon of the utmost value.

The aspect of Turkey from the point of view of varieties is the result of the geographical conformation and climate spoken of above. In Anatolia, there are hard wheats which show the greatest diversity and are of the highest importance. Anatolia, undoubtedly, forms part of the centre of origin of these wheats and almost all varieties of this cereal are found. Soft wheats take a secondary place, though their importance is great for the breeder, both Turkish and otherwise. Anatolia is characterised by an abundance of forms of soft spring wheat and soft, awnless wheat; and is probably the cradle of this type of wheat which has spread so widely throughout Europe and America. Thirty four varieties of soft wheat have been determined in Anatolia, almost all spring wheats. The importance of soft wheats increases from west to east. They are chiefly cultivated on the Anatolian high plateau where the richness of forms is greatest. On the other hand the diversity of hard wheats and rivet wheats covers the Mediterranean region of Asia Minor, and thence the hard wheats have spread towards the north. The *Koubanka* type, which has become important in Russia, still exists in Asia Minor.

The third place is occupied by *Triticum compactum*. This wheat is chiefly found in the eastern parts almost always accompanied by soft wheat. The rivet wheat (*Triticum turgidum*) is of less importance though in places it is dominant. *Triticum polonicum* appears to have been introduced from Syria; *Tr. persicum* is found on the eastern frontier. The absence of *Tr. spelta* may be noted in Anatolia; *Tr. sphaerococcum* does not exist in Turkey; on the other hand, the new species *Tr. Vavilovi*, with branched ears, has been discovered recently in the vilayet of Van. Wild wheats of the spelt type are found frequently in almost all Anatolia.

The variations in size between various forms of wheat appear from the data furnished by MIRZA GOKGOL: the weight of 1000 grains varies from 23 to 87 grammes; the length of the straw from 80 to 170 cm.; that of the ears from 2.5 to 13 cm.; the period of maturation may vary by 35 days according to the variety.

It is certain that, though it cannot be verified in detail, the different peoples who have inhabited present day Turkey have exercised a profound influence from the point of view of varieties. They have increased the number of kinds of cereals by importing new varieties, they have eliminated others which were unsuitable to their needs, and they have thus carried out an important work of selection throughout the centuries. Barley grown in Anatolia, in spite of the great diversity of varieties, is the product of popular mass selection combining the characters which have been found useful.

Winter forms of cereals have become differentiated under the influence of the Mediterranean climate and the type of farming practised in the western and southern coastal zone. In the high plateaux, on the other hand, the dry autumns and the severe wintters do not permit winter crops and have resulted in the differentiantion of early spring forms during the course of a natural and artificial selection, although possibly unintentionaly, throughout the centuries.

This was the state of affairs when, 10 years ago, the various plant improvement Stations undertook to improve the native varieties by careful breeding and systematic methods.

Wheat. — Among the 8 Government Stations for Plant Improvement, 6 are occupied with wheat, which shows the importance now attributed, with reason, to this crop. The work of the Stations of Eskisehir, Yesilköy, Adapazari and Ankara has already resulted in obtaining varieties which are well established and have been subsequently distributed to farmers. In order to provide as wide a basis as possible for breeding, local varieties were first collected from all parts of the country. The 1600 different varieties thus collected were classified according to their morphological and ecological characters and from this classification were obtained 18 000 different forms among which 22 new varieties were discovered.

Breeding work was started at Halkali in 1926 and continued at Yesilköy, near Constantinople, in 1931. The first results of breeding led to obtaining the variety No. 1133, taken from a crop grown in the vilayet of Smyrna and belonging to *Triticum durum*, var. *erythromelan*, a hard wheat with brown ears, smooth, and with black awns. The grains are light brown, weight 57 grammes per 1000 grains, protein content 15.2 %. This wheat is very suitable for bread making, and gives a bread with an agreeable taste and pleasant odour.

During the course of comparative trials carried out in Thrace and in the north west of Anatolia for 3 consecutive years, this wheat proved to be immensely superior to local wheats, and even superior to *Mentana* so that the famous Italian variety has not been able to withstand the competition of this wheat in these regions.

The Anakara Station, which started work in 1927, has bred the hard wheat No. 65-29 which was put on the market in 1933. The Eskisehir Station began work in 1925 and in 1931 placed on the market the variety No. 702, a soft wheat, awned, with yellow ears and grain, weight 33 grammes per 1000 grains.

At Yesilköy for the last 5 years, numerous crossings have been made, using as parents 2 native varieties, with a view to combining the good qualities of both, or, preferably, a native variety and a foreign variety, chiefly *Mentana*. Efforts were directed, for example, towards giving the local variety No. 1181, a variety very resistant to lodging and rust, but too late, the precocity of *Mentana*. Among these hybrids several choice kinds have already been chosen which from the external aspect appear to be promising. One or two years will elapse before carrying out general selection with the whole crop resulting from the hybridization, It is only following individual selection and comparative tests that it will be possible to form an idea of the practical results obtained by hybridization. One of the most important questions will be the baking quality.

Barley. — The best brewing barleys in Turkey are produced in the regions with a Mediterranean climate. This climate, owing to autumn and winter rains, is favourable to winter barleys. The greatest number of winter forms are found here, while spring barleys are found in the interior of Anatolia. The line of demarcation between the two forms is clearly defined. Barleys in the Mediterranean region have a low protein content (8 to 9 %) and a high starch content (52 to 58 %). Barleys in the interior of Anatolia have a protein content rising to 12 %. This difference characterises the latter as good brewing barleys and the other as good forage barleys.

Selection work with barley is still in the early stages. The Yesilkòy Station, after careful trials, has recently produced a four-rowed barley, No. 160. It was taken from a crop in the region of Sivas, in central Anatolia. It is a variety with a high yield, excellent for forage and especially adapted to conditions in Thrace and in the north west of Anatolia. The Eskisehir Station has produced a spring two-rowed barley which has given satisfaction. The Anakara Station, has also solved a question of extreme importance for farmers in Turkey by producing a two-rowed barley, of good quality and sufficiently resistant to cold for winter cultivation.

Oats. — No. 138, produced at Yesilköy, is a winter form of *Avena sativa*. It is resistant to cold and yields harvests which, during a period of 5 years, have been on an average 15 % higher than those of oats cultivated up to the present in Thrace and Western Anatolia. The Eskosekir Station has also distributed, for the last 2 years, a variety of winter oats adapted to conditions in Central Anatolia.

After the hard winter of 1928-1929, the idea of establishing a variety of summer oats was again entertained and No. 200 was produced which gave good results. However, in 1934, a year of drought, it was observed that spring sowing of oats was very risky.

While the cultivation of the common oats, *Avena fatua sativa*, was introduced into Anatolia in recent years, that of Byzantine oats, *A. sterilis byzantina*, has been practised from the most ancient times. This last species is a Mediterranean type and is grown in regions with a Mediterranean climate. It is found in the greatest diversity in Asia Minor. This species is rich in typical autumn forms which render it valuable for regions with dry summers, it is also resistant to crown rust and, owing to its strong straw, also to lodging. According to trials carried out in Russia, these oats, after having been subjected to vernalisation, exceeded in precocity all the known varieties of ordinary oats. Introduced into Russia, it is well established in the cotton growing districts of Gandja where it has been multiplied.

Rye. — According to **Zhukovsky**, Anatolia has been and is the " arena of greatest differentiation " for rye. All forms and ecological species are found there, both for cultivated and for wild rye. It must, therefore, be admitted that Anatolia is the place or origin of rye. For breeders, the Anatolian ryes present very important characteristics: the weight of the grain reaching 45 grammes per 1000; 3 grained spikes; exceptionally long ears; resistance to shedding selffecundation. The perennial rye, *Secale montanum*, is important from the point of view of its tendency to produce pluriannual cultivated ryes. The preference now given to wheat throughout the world has so far prevented the possibilities offered by Anatolian ryes being tried out by selective breeding.

The Ankara Station multiplies the Petkus rye and distributes the seed.

Maize. — The Adapazari Station is occupied with this cereal which has a local importance. The improvement of varieties, from the points of view of quality and quantity is in progress.

Conclusion. — To sum up, if what has been said is reviewed in retrospect, it will be noted that Anatolia is astonishingly rich in different species, varieties and forms of cereals originating at this point of junction between three great continents: Asia, Africa and Europe, and transformed, during the centuries, by the combined action of nature and of the farmers of different races and origins, who inhabited this peninsula. The phenomenon of oasis cultivation (local agricultural centres isolated from each other) has played a considerable part in the formation of the varietal aspect which is evident at present in the country and which is of great value to the breeder, both Turkish and otherwise.

In the majority of plants cultivated from the earliest times in Anatolia there may be seen, according to Professor ZHUKOVSKY, the hand of man, the objetct he had in view, the seal of the work of improvement. This former work of selection, which has given the plants the cachet of cultivation and a certain uniformity, in spite of their natural polymorphism, appear particularly marked in the hard wheats and the soft awnless wheats. From a study of the wheats cultivated as a whole in Anatolia it is realised that we have here the periphery of the area of origin of *vulgare* and *compactum* wheats on the one hand, and of *durum* and *turgidum* on the other. The line of demarcation between the two first and the two second coincides with the limit dividing Mediterranean agriculture from that of the centre of Anatolia.

The scientific improvement of plants, organised for the last 10 years, is entirely in the hands of the State. The climatic and economic conditions having rendered necessary a decentralisation and a distribution of work, co-ordination and collaboration has been assured by a most careful organisation and a central direction placed under the supervision of the Ministry of Agriculture.

Neglecting, generally speaking, the idea of importing foreign varieties and using the immense richness in divers forms as a basis, the Turkish breeder has succeeded, in the course of a few years, in producing improved varieties greatly superior to the native varieties previously grown. The new varieties placed at the disposal of farmers in exchange for equal quantities of ordinary grain have been well received and today practical farming is already profiting from the recently established breeding work carried out in Turkey.

This article cannot be concluded without a grateful acknowledgement of the valuable information provided by: Professor CHRISTIANSEN-WENIGER (University of Ankara) and MIRZA GOKGOL, Director of the Yesilköy Station.

N. VON GESCHER.

Publications consulted:

1) CHRISTIANSEN-WENIGER F., Die Pflanzenzüchtung in der Türkei. — *Der Züchter*, Berlin 1929, Nr. 8, p. 250-256.
2) CHRISTIANSEN-WENIGER F., Zweiter türkischer Pflanzenzüchterkongress. — *Der Züchter*, Berlin 1932, Nr. 4, p. 110-112.
3) CHRISTIANSEN-WENIGER, F., *Die Grundlagen des turkischen Ackerbaus*, Leipzig 1934, 475 p.
4) GÖKGÖL MIRZA, *Die türkischen Weizen*, Istambul 1935, 436 p. (en turc, résumé en allemand).
5) HACIZADE MIRZA, Die Verteilung der Weizenarten in der Türkei. — *Der Züchter*, Berlin 1932, Nr 3, p. 70-76.
6) ZHUKOVSKY P., *La Turquie agricole*, Moscou et Leningrad 1933, 908 p. (en russe, résumé en français)

CONTRIBUTION TO STUDIES ON SHEEP BREEDING IN TURKEY

(*Part III*) (*)

II. — BREEDING OF KIVIRDJIK SHEEP IN WESTERN ANATOLIA.

I. — DIFFUSION OF THE KIVIRDJIK SHEEP.

Apart from small districts, the main area of diffusion of the Kivirdjiks lies in Western Anatolia, along the line indicated in Part I: Kutuya — Eskishehr — Aydin. In these districts which border on those where the Karaman sheep are raised, and also to some extent in the eastern provinces, the flocks are often crossed with the Daglic and Kamakuruk breeds. In Thrace Kirvidjik sheep are found exclusively .

In the western provinces of Anatolia, the Kivirdjik sheep are thus the predominant breed. The designations Kivirdjik and Pirlak are interchangeable. ISHAN ABIDIN regards the Pirlaks as a crossing commonly made between Daglic rams and Kivirdjik ewes, while the Kamakuruks represent the inverse cross. From the evidence of breeders, however, it would seem that this distinction and this designation are not always correct. Thus, for example, some animals are designated as Pirlak which in their characteristics and their tail formation do not differ from the Kivirdjiks and do not result from the crossbreeding indicated. To some extent, accordingly, the designation Pirlak appears to be directly applied to Kivirdjik sheep.

In breeding Kivirdjiks account is taken of milk, flesh and wool production ; in comparison with all other breeds, with the exception of Sakke ewes, their milk production is higher. In respect of the three products there exist considerable variations between the different flocks in the country, so that now one and now another production predominates. The particulars here given relate to the Kivirdjik sheep of Anatolia and not to those of Thrace.

(*) Part I: in *Bull.* No. 7 (July) - Part II: in *Bull.* No. 8 (August).

2. — MAINTENANCE, ALIMENTATION AND BREEDING.

In the west of Anatolia, in the region where the Kivirdjiks are found, sheep farming is chiefly based on pasturage. The quantity and quality of the feed is mainly dependent on the precipitations. In the provinces, relatively heavy rains occur in January, February and March, the total precipitations in those months being nearly equal to those of the spring and autumn together. During the summer, it very seldom rains; the coastal regions however profit by the influence of the sea. Following on the winter and spring rainfall, together with a high temperature, vegetation develops rapidly and forms a fairly dense cover, in which herbaceous plants grow taller than the grasses. When the moisture fails, the vegetation soon dries up, and only in some valleys having subsoil water and in hilly and mountainous regions which are sheltered by bushes or trees, does it persist during the entire year.

The cultivation of forage crops is in its initial stages; lucerne is only occasionally grown, although its cultivation is possible to some extent in large districts of the West even without irrigation. Maize is grown for grain production; it could also serve as a green fodder. Vetch and clover are almost entirely absent.

In the hot summer months, grazing is only possible in the early morning and after sunset. The grazing period, therefore, is concentrated into a few hours a day. As BELLER remarks, this necessitates grazing wherever the flocks happen to be, without regard to good or bad conditions. In the treeless districts of the West, summer shelters for the sheep are found. On wooden stakes rests a roof of branches, reeds or straw, under which the sheep remain during the heat of the day. The sheeps' dung is taken out and heaped up outside in mounds. According to BELLER, when the ground is dry, this practice does not cause any danger of infection. However, when the soil is sufficiently moist, it renders possible the development of larvae from the eggs of parasites. In this case, the accumulation of dung causes great danger of infection.

In the summer, the sheep have to graze on the stalks of dried-up grasses and plants ; it is only in the hollows and on the mountains that any green pasturage is left. As retreats for the sheep in the hot summer months, recourse is had to the high lying mountain pastures especially those of Olympus, Mysia and Mount Ida. On Olympus and all the mountain ranges of Keşiş. these mountain pasturages are so extensive that up to 30,000 sheep could be maintened there of late years. Even if the summer rains fail, the dew is sufficient to provide the plants with the necessary moisture. To reach these mountain pasturages, considerable travelling powers are required of the sheep, as they have to cover 200 to 300 km. before arriving at these summer pastures. When the sheep return from the mountain pastures, they are grazed on the stubble fields of the valleys and there find sufficient nourishment.

In the Western provinces the grazing lands have been unfavourably affected by agricultural development. Farming, fruit and garden cultivation, especially also fig and olive growing have greatly restricted the grazing areas for sheep ; so that to-day, these are found chiefly in the less favourable plains and depressions, which have not yet been cultivated. But, generally these regions are, as BELLER indicates, not healthy, as they are to a large extent swampy and inundated lands, and therefore act as breeding places for the larvae of parasites.

Drinking places near the sun shelters and folds hardly exist. Natural watering places such as rivers, lakes, swamps, more rarely wells and springs are utilised. As BELLER points out when swampy streams and rivers serve as drinking places, there is danger of infection. Before moving to the fresh mountain pastures in spring, the young sheep may already have been infected.

In Western Anatolia, the winters are generally very mild, so that the temperature seldom falls below freezing point; also snow storms are less frequent and less abundant than in central Anatolia. Heavy snow fall only takes place in the mountains, chiefly the Keşiş mountains, which are left by the flocks in autumn. As a result of the mild winters, the sheep can graze practically the whole year; only on cold snowy days and during continuous rains, do they remain in the sheep folds. As a winter feed, the Kivirdjiks receive chiefly straw, which sheep eat readily, only occasionally do owners of flocks give as an additional feed, hay, barley or sesame cakes, in quantities varying greatly with the breeders. As a rule, an additional ration of 10 to 20 kg. of barley per 100 sheep, and 50 to 100 kg. of hay and straw may be calculated, but most of the sheep find their own nourishment on the pastures, even in winter.

In the plains of the West, the winter sheepfolds with clay walls and roofs of clay, straw, reeds or corrugated iron predominate. Even during the winter the sheep pass the greater part of the day in the open; only on very snowy or wet days, do the sheep remain in the folds. These consist sometimes of low shelters open on one side, or even with a " kraal-like " fence or enclosure.

In a flock of 750 to 800 sheep, there are on an average 35 to 40 rams; 20 ewes are usually reckoned for every ram. The rams go with the ewes to the pastures throughout the year, and hence mating is uncontrolled. It is however claimed that more use is made of the older than of the younger rams. Breeders hold the view that shearing results in increased sex activity. This much is correct, that shearing stimulates metabolism but that any other effect results has yet to be established. In some flocks, during the breeding period, the rams receive an extra nourishing ration, usually composed of barley. In some flocks, it is customary to choose as breeding rams animals bred in the flock itself. A delicacy of constitution and a reduction in size may be, in part, regarded as the result of such measures. Most of the ewes and rams are removed from the flock as soon as they reach the age of 5 years.

From breeders' information, 8 to 15 per cent of the ewes remain sterile. This is more often the case with young ewes, which abort more frequently than the older ones. It is calculated roughly 2 to 5 per cent of the ewes abort. The data in this respect show little agreement, sometimes these losses are given as 5 per cent, other times up to 25 per cent. In autumn, when the animals are in a well nourished condition, they easily become in heat, so that the lambing period is shortened.

According to the climatic conditions and to the market demand for lambs and milk, the lambing period varies from one region to an other. In the vicinity of Istanbul, some times it takes place in December, occasionally even earlier, and in February and March. the lambs are offered for sale. In the neighbourhood of Adrianople (Edirné), lambing is mainly in January, and usually, at least 2/3 of the ewes have lambed in the course of that month. The principal period of lambing is about the middle of January, though sometimes, it continues through February and to the beginning of March. In the Western Anatolian provinces, lambing begins about January and extends according to circumstances to 15 March. In the neighbourhood of Brusa, the lambing season is calculated to last 45 days, though it generally extends over a somewhat longer period.

Sometimes only the ewes whose lambs are not to be kept, are milked, sometimes all the lambing ewes. Generally the lambs are weaned at the beginning of May, and from that day begins the proper milking period. Before this period the ewes are usually milked once a day. Notwithstanding the different ages of the lambs, they are all separated from the mother ewes at the same time, so that their development varies greatly and the youngest animals are very backward.

When most of the lambing is finished, about the beginning of March, the animals fit for breeding or raising are separated from the weaker and less developed animals which are sold. The ewes thus culled are often put up for sale together with their lambs. Sometimes these animals are partially fattened on the pastures before selling. The wethers are generally disposed of during January.

3. — THE CHARACTERISTICS OF THE KIVIRDJIK SHEEP.

The coat, consisting of wool mixed with stiff hairs, is usually white. In the western provinces, however, are also found sheep with brownish, brownish-black, complete black or spotted coats. Generally the white Kivirdjiks (Belka-Kivirdjik according to VETULANI) are differentiated from the brown Kivirdjiks (called Karnabat by VETULANI). The white Kivirdjiks have sometimes a pure-white head and white legs. Very frequently on the head or legs, often on both at once, dark brown or black patches are found, more rarely ochre yellow or orange. On the white fleeces, pigmented patches are also sometimes seen. Speckled heads and legs are quite usual, but such a colouring of the entire body is less often found. Not only the wool but also the skin may be pigmented.

The live weight of the Kivirdjik sheep is given by VETULANI as 25 to 40 kg., and that of the wethers with good nourishment may attain 70 kg. According to this writer, the white Kivirdjik sheep have a higher live weight than the pigmented ones, which view also coincides with our own observations. From evidence collected from about 90 sheep, an average live weight of 34 kg. was found ranging betwen 25 and 46 kg.; usually it lies between 30 and 40 kg.

In Turkey, the flesh of the Kivirdjiks is considered the best meat, as is evident from the prices. In comparison with the Karamans, the flesh is decidedly more tender and more juicy; if the animal is well nourished there is less fat under the skin and at the tail than with the Karaman sheep, but fat is found also between the muscle fibres.

With regard to *types*, decided variations are found. One type which is seldom met with, represents the extreme type of native sheep having a fairly long and narrow neck. These animals are remarkably tall and very slender especially in the thorax; they have a pointed rump and are very small-boned.

In the other extreme, there are found animals standing lower, with broader thorax and pelvis. The convexity of the ribs is decidedly more pronounced than in the previous type, and the rump is less massive and less pointed. At times these animals have thighs well developed on the inner side but less well on the outer. The neck is shorter and narrower, and the head is of medium length and narrow. Between these extremes, different variations are found. The measurements of the second type are as follows:

Height at withers: 60 to 71 cm. with an average of 65.9 cm.

Height at back: 62 to 73 cm., average 68 3. In half of the animals, the height at back exceeds that at withers, and in nearly all of the animals, the height at crupper is more than that at back. Only in 15 per cent of the animals was the height of the back less than that of the withers, and in 10 per cent. the height of the back was equal to that at crupper.

Total length of body: 66 to 74 cm, average 70.8. Only in 3 animals was the length equal to the height at withers. It is usually greater.

Depth of thorax: 37 and 42 cm, with an average of 40 cm, or 60 per cent. of the height at withers.

Breadth of thorax: 17 to 22 cm, average 19.8, or 30 per cent. of the height at withers.

Breadth of pelvis: 19 to 24 cm., average 21.9 or 33.2 per cent of the height at withers.

The fore hock has a cincumference of 7 to 8 cm., on an average 7.9 cm.

Length of the head: 23 to 27 cm, with an average of 24.4, or 37 per cent. of the height at withers.

Maximum breadth of head: 12 to 15 cm, average 14 cm, or respectively 21.2 per cent. of the height at withers.

Native sheep usually have a strong and somewhat drooping ear of medium length. The length is often double the breadth; sometimes short and decidedly stumpy ears are also met with.

The ewes are on the whole practically hornless. They are found, however, to have stumps, small horns spindle-shaped in section, and also occasionally transition forms to stronger horns, similar to those of rams.

The horns of the rams are powerfully developed and show more similarity to those of the Zigaya than those of the Merino sheep. Only the spiral nearest the head is thicker, while the axis of the open spiral of the horn leans slightly forward and downwards. Sometimes the horns cannot be distinguished from those of the Zigaya, and sometimes Merino influence can be discerned.

In the tail formation of the Kivirdjik sheep considerable differences are found. Sometimes a longer, thinner tail is met with, which reaches to the hock joint, sometimes there is a more or less shortening with a smaller or larger fat layer at the base; the formation of the fat layer also varies. Generally the thin tail end comes heart shaped from the gradually narrowing long base. A slight curve may also be found in the tail end. Contrary to our statement, VETULANI says that the long thin tail reaching to the hock joint is a characteristic of the Kivirdjiks. According to his observations, the Kivirdjiks belong to the breed of typical native sheep with long thin tails. In the Brusa abbattoir, he saw sheep which were said to be Kivirdjiks, but were merely crossbreds between Kivirdjik and Dagliç sheep, and these had conical shaped tails. According to our own observations made on large Kivirdjik flocks in the western provinces, sheep with decidedly long thin tails, reaching to the hock joint, are considered exceptions. Variations between a long thin tail and a pronounced fat tail predominate. The animals with long thin tail were precisely those nearest to the Zigaya type.

According to VETULANI, the white Kivirdjiks have relatively shorter tails than the pigmented ones; this on the whole is proved correct.

The constitution of these sheep is normal and corresponding to that of indigenous domesticated sheep, as is also shown by the average strength of their hide. In the animals of some breeds, the bone structure tends to become finer rather than coarser. This is caused by the want of calcium in the soils of the alluvial districts, and also by the lack of albuminous substances in the nourishment of the young sheep.

4. — MILK PRODUCTION.

Among the Anatolian breeds, the Kivirdjik sheep and the Sakke sheep are in the first rank as milk producers. VETULANI gives the quantity of milk as being from 40 to 60 kg. According to his observations, the pigmented Kivirdjiks yield more milk than the white sheep, a statement not always confirmed by the breeders. Sometimes the latter calculate the average yield at 30 kg. only when the Kivirdjiks are regularly grazing, sometimes, however, the figures run between 30 and 60 kg. KADRI, for three consecutive days, examined the milk yield of 100 ewes, of different ages, and established an average of 274.5 gm., which for a milking period of 5 months represents an average of 41.3 kg, per year. According to observations made in the Brusa School of Agriculture, a yearly average may be taken of 30 to 40 kg. o milk with 5 to 6 per cent fat. When the animals receive an additional ration, the milk yield is increased by 1 kg. per day.

The great variations which lie in the milk production of some Kivirdjiks are shown by the milk testing experiments carried out by EKREM RUSTU on 15 sheep in 1931. These sheep were milked once a day for 46 days and twice a day for 132 days. During the whole lactation period, a quantity of 24 kg. was obtained in the first case and 110 kg. in the second; an average of 70 kg. was milked from the 15 animals. Certain variations are also found in the fat content of the milk of some animals; in one case the average was 6.6 per cent fat content and in another 8.2, on a general average the milk of the 15 Kivirdjiks contained 7.7 per cent fat.

The lactation period of the Kivirdjiks lasts, as also according to VETULANI, sometimes 4 to 5 months, sometimes 6 months, and in exceptional cases, with good pasturages, 7 months.

The sheep owners who only have a few sheep, use the milk themselves chiefly for making butter and cheese for daily use, and as a reserve stock for the winter. The large sheep breeder during the lactation period makes a contract with itinerant cheese merchants, who undertake to buy, from a certain day and generally for three months, the entire amount of milk obtained. At the expiration of the contract, the milk then produced is utilised by the owner. In the western provinces, ewes milk also plays an important part in yoghurt production.

5. — WOOL PRODUCTION

In quality the wool of the Kivirdjiks lies mainly between *b* and *e*, with predominance of the categories *c*, *c/d* and *d*. According to VETULANI, the Karacabey-Kivirdjiks have a poorer quality wool (assortment *c* to *d* with *c* predominating) than the other Kivirdjiks for the following reason. The Albanian shepherds in charge of the flocks in the Sultan's former domains, devoted their chief attention to meat production, while wool production was neglected. According to our observations, these differences now seem to be only partially existent; actually the greater part of the flocks, which we have observed in the provinces, have a wool resembling, in its principal category, the wool of the Kivirdjiks. Only the rams, sometimes show a well marked *c* character.

In the very small type of native sheep, a wool of mixed character is found to predominate, while in the other types, frequently a pronounced *c* wool, less often a *b/c* or *b* wool is noted.

In some flocks of the country, the rams also have a decided *c* wool, while the Kivirdjik rams at the Karacabey national breeding farm have a *d* wool. With the exception of that of the Merinos, the quality wool of the Kivirdjik breeds takes first place in Turkey.

VETULANI gives as chief category of the Kivirdjiks, *b* to *d*, with a preponderance of *b* From our observations in the western provinces, this last, however, is not proved, the *b* fleece is seldom met with. VETULANI explains these fluctuations not only by great variability, but also as steps in the development and improvement of the wool of the Kivirdjik breeds

This much is istablished, that it is especially in the finest fleeces, that Merino influence appears. In such animals, pronounced wool defects, brittleness and twisting, are often met with. Without further information, the direct presence of Merino blood cannot be proved; it is probable, however, because Merino crossbreds from Karacabey are often given to the breeders of the neighbouring vilayets, with a view to improving the native breeds.

As regards uniformity in the fleece, variations are found from uniform wool to quite the reverse. This last was chiefly observed in animals presenting definite crossbred characters. When a *c* wool was found on the shoulder, very frequently the flank wool differed by one or two categories at least. The thigh wool had a decidedly mixed character or contained much coarse hair. Some animals were met with, in which the whole fleece was interspersed with stiff hairs.

The character of the wool depends on its fineness. The *d* and *e* wools were usually smooth, *c/d* and *c* wools slightly or normally curled, seldom with high or exaggerated curling. On the shoulder and withers, the wool had a stronger tendency to curl. Sometimes a pronounced gloss is found, chiefly in *c* and *d* wools. A harsher wool was the result, in part, in consequence of coarse character and the strong yolk content of the coarse hair.

The elasticity, the suppleness, and resistancy were for the most part good; but the points of the hair were frequently soft, which is to be explained by the low tallow content. In the mountain sheep, the resistancy of the wool appeared to be less, perhaps as a consequence of the ultra-violet rays of the sun.

The yield of the *d* and *e* fleeces appeared to be higher than that of the *c* fleeces, and was generally between 50 and 60 per cent.

The fleece of the animals is usually not thick and the hairs are fairly closely scattered. The fleece, therefore, has very little wool and the belly especially is bare. This bareness frequently was noticed after the first lambing. As a rule, hairs appear less frequently in the coarsest wools, than in the *c* or *c/d* wools. In consequence of the thinness of the wool, the shearing weight is low. On the basis of information gained in Balikesir, VETULANI quotes this weight at 1.6 kg.; but it is often 2.5 kg. and it may attain 4 kg. For the Kivirdjik ewes in the western provinces these last figures appear to be too high For the ewes, 1.4 to 1.8 kg. with an average of about 1.5 kg , can be calculated and for the rams, 2,0 kg.

Sometimes the sheep are sheared twice in the year once before they move to the high lying pastures in the Keşış mountains, and later when they return in December. Before the autumn shearing, the animals are washed so that the wool does not require a further trade washing.

The consistency of the wool is sometimes slight, as little binding hair is found. On the legs open tufts are very frequently found. Sometimes the hairs are longer than the wool tufts, especially on the leg. Strand formation is chiefly lacking in the coarse wools, and the moss-like condition of the staple is a result of the methods of upkeep of the flocks.

As regard the development of the head, sometimes a small lock of wool is found on the forehead and some wool on the lower jaws. Frequently, however, the head is wool-free up to behind the ears. Occasionally these wool-free parts also include the neck and less often the gullet down to the chest. The stiff pairs on the head and on the legs is either of a silvery colour or else a dull milk-white. On the legs, this hair often spreads over the knee down to the hock. In the animals with Merino blood, this covering is thicker.

6. — THE ORIGIN OF THE KIVIRDJIK SHEEP.

According to VETULANI, the Turkish breeders state that Hungary, S. Russia, and the Balkan Peninsula form the area of diffusion of the pure Kivirdjiks thus emphasising the near relationship with the Zackel sheep of the nearby lands. VETULANI however, gives as a characteristic of the Kivirdjiks the long tail, and this presents no analogy with the Zackel sheep, as the pure-bred Zackel sheep with their characteristic slanting, very twisted horns never have a tail reaching to the hock. Certain indications of the origin of the Kivirdjiks are given in the history of sheep breeding at the Karaçabey farm. At the time of Sultan Medjeds, Merino were imported into Adrianople from France, which were later taken over by the Karaçabey farm. The flocks were not made the object of systematic breeding and soon Zigayas were introduced into the country, a more remunerative breed on account of their milk production. The Merino ewes, therefore, were crossed with the Zigaya rams. After the revolution of the Young Turks a partial recrossing with Rambouillet was carried out.

The animals culled at the Karaçabey farm were often sold to breeders so that breeding in the western provinces was influenced by these Karaçabey sheep. In country breeding, the influence of the Merinos seems to be less marked; only in a few floocks does a certain similarity to Merinos appear in the wool. Generally speaking, the average composition of the wool more resembles that of Zigaya wool, though certainly less coarse and tending to be of a mixed character. In the tail formation, there is hardly any difference between the Kivirdjiks and the Zigayas; only the wool tends to be of lower category and the milk production is generally less, though many strong yielding ewes give a yield corresponding to that of the Zigaya.

Besides the Zigaya, also the Karaman sheep have played an important part in the origin of the Kivirdjiks. These fat-tailed sheep represent an old breed of Central Asia. The thickening and the fat layer at the tail base and the reduction of the vertebral column show the influence of the Karamans on the Kivirdjiks. The slight thickening at the tail base and a similar partial reduction of the vertebral column at the tail is observable in the repeated crossings of long-tailed with fat-tailed sheep. In similar recrossings the type may conform closely to the breed used for the crossing, while the character of the crossing is always recognised by the tail formation. As appears chiefly from examinations made on Somalo-Merino crossbreds, the character of the cross seems to be more easily obtained by heredity than the tail formation.

In the horn structure of the fat-tailed sheep there is a more pronunced tendency to weakening of the frontal-nucal ridge, which is also noted with the Kivirdjik rams. The horns show the stronger Zigaya influence.

In most of the Kivirdjiks are present brownish, blackish or yellowish patches on the head and legs, also resulting from the crossbred character of these sheep. By crossing sheep, which regularly show pigment in face and legs, with white sheep without markings, in F_1 mixed breeds result, which show decided patches on the head and legs. The Zigaya has on the head and legs a uniform brown, blackish or yellowish colouring, while the Anatolian fat-tailed sheep either has the head and legs entirely white or else, on the head only, a black muzzle marking, and on the legs a black ring above the hoof. Sometimes this colouring is more pronounced.

From the consideration of some of the special characters of the Kivirdjiks, it may be supposed that these sheep result from the crossbreeding of Zigaya sheep of south-eastern Europe with Central Anatolian fat-tailed sheep, the Karamans, and that probably recrossing with the Zigaya took place. Some breeds indicate a certain Merino influence.

7. — METHODS OF IMPROVING THE KIVIRDJIK BREEDS.

The possibilities of development of the Kivirdjik breeds lie in two directions. In the provinces of Brusa, Balikesir, and Canakalle, the Kivirdjik sheep should be used for the breeding of improved native sheep yielding a wool resembling Merino, of *ab* to *b* fineness. This wool supplies the finest material required by the spinning mills of Brusa. The objective in view is that the improved sheep should inherit from the Kivirdjiks the frugality, the endurance and capacity for long distance marches, and from the Merino meat sheep, an improved wool, and, with better feeding, a higher meat production.

In the other regions of the Kivirdjiks, the object should be to increase, through improved feeding and through systematic selection by pure lines, the various kinds of production.

The few experiments already made show that the Kivirdjiks, with a better feeding during the lactation period, respond with an increased milk yield, though at the same time, considerable differences appear with different animals. It, therefore, would seem appropriate to undertake a more extensive cultivation of forage crops in the breeding districts, or at least, during the lactation period, provide a greater bulk of barley or oats. The chief forage crops which come into consideration are lucerne and green maize, and the latter can easily be planted for summer and winter feeding.

It is of great importance that the Kivirdjik breeding should be consistently directed towards milk production. This is only possible, however, when all the animals are systematically subjected to a milk control. It is sufficient if this control takes place two or even three times a week. Such testing is carried out both for the quantity of milk yielded and its content in butterfat. The testing makes it possible to reject the poorer milk yielders, and thus to raise the average milk yield of the flocks. By means of a systematic selection, rams, are obtained capable of transmitting a high milk yield aptitude to their progeny.

At the same time, by such a selection, an improvement in the quality of the wool can be obtained. As experiments on Friesian milk sheep in East Friesland have shown, a high milk yield is found in conjunction with a *c* or *bc* wool. For that reason, endeavours should be made to obtain a *c* wool in the Kivirdjik, sheep as this quality of wool is utilised in great quantities by the wool industry of the country.

III. — NECESSITY OF ECONOMIC MEASURES FOR THE IMPROVEMENT OF SHEEP BREEDING AND OF THE EXPORT TRADE IN THEIR PRODUCTS.

The Anatolian peasant employs the milk and its products, the wool, the flesh and the skin of his flocks for his own use, for sale in the interior and also for export. Selling at home and abroad is in the hands of small dealers and agents. The question may now be considered: up to what point can official measures increase the revenue which the peasant obtains from sheep breeding and how far do the products enter into the export trade.

Yoghurt, butter, chiefly in the form of buttermilk, and cheese are the products obtained from the milk. Sheeps' butter is always less appreciated than butter made of cows' milk. In the same way, yoghurt is only used in the interior, and prosperous yoghurt industries are only to be found in the vicinity of the larger cities.

The most important milk product is cheese, and the following varieties are found in Anatolia: white cheese, Tulum, Mialiç, and Kasar, of which the Kasar is considered the best. It is utilised by the population, hence there is no import of cheese and on the other hand it is exported. Ekrem Rüstü states that in Istanbul, an average of 7 million kg. of Kaşar cheese are consumed per year; about 1 kg. per head.

The consumption of cheese is increasing every year, while in the last few years exports have considerably diminished, as shown by the data in Table XXIV.

Table XXIV. — *Export of Various Cheeses from 1930 to 1934.*

	1930	1931	1932	1933	1934
Kaşar and various white cheeses:					
Quantity in kg.	612 628	574 300	253 459	126 697	38 599
Price per kg. in Turkish pounds . .	0.45	0.40	0.36	0.27	0 30
Fine cheeses (Gruyère, Chester etc.):					
Quantity in kg.	51 000	48 342	32 940	4 460	419
Price per kg. in Turkish pounds . .	0 77	0.58	0.72	0.73	0.46

From 1930 to 1934, the cheese export trade has sustained a decided decrease in both quantity and price. In 1934, the exportation of soft cheeses was not more than 6.3 per cent. of that in 1930, and that of Gruyère and similar chesees only 0.8 per cent. The price of cheeses exported in 1934 in relation to the 1930 price was not more than 66 per cent. for Kaşar, and 59 per cent. for Gruyère.

This decrease in exports is due to several factors, among which the Turkish rate of exchange seems to be of minor importance seeing that other articles of export have been bought in increasing quantities by countries with a low exchange. On the other hand, the increased production in neighbouring countries may affect the exports; Bulgaria and Greece especially have sought to improve their sheep breeding and to supply the market with superior quality cheeses, because in these countries the conditions for cheese production are to some extent more favourable than in Turkey.

As Ekrem Rüstü has shown, good Turkish Kaşar cheese, in its composition and quality, is equal in every way to the best foreign cheeses. The reason for the decreased export of this cheese is chiefly that the quality has deteriorated in consequence of complete absence of control. The following factors have contributed to the lowering of the quality of the cheese.

(1). *The uncleanliness of the milk.* This is seen more in the milk of the Karamans than that of the Kivirdjiks. The Karamans which have large heavy tails, are very dirty round the tail, the thighs and to some extent on the belly and teats; therefore, when they are milked, much dirt and even particles of dung fall into the milk, which becomes of bad colour. As a result, the Kaşar cheese obtained is of an inferior quality; it is not of a normal yellow colour, but of an undecided colour, a dirty yellow or brownish yellow, resulting from an abnormal fermentation. To avoid the uncleanliness of the milk, it should be absolutely insisted that the sheep be sheared before the milking period, that they are milked more carefully and that the milk is afterwards filtered through a cloth.

(2). The use of *raw cheese made on small farms or holdings* for the preparation of Kaşar cheese lowers the quality of the product. This raw cheese leaves much to be desired, as the rennet has been added without proper care. This cheese is frequently even more dirty than the milk which is used directly by the cheese factories, as these generally filter the milk they receive. The transport of this cheese in dirty sacks is another cause of deterioration.

Unfortunately the manufacturers are obliged to buy this cheese when the flocks are a great distance away, so that, this system will still continue for a long time in various regions of Turkey. However, by instructing the young farmers in the dairy schools and by constantly controlling the work in the country, gradually greater care could be obtained in the preparation of this crude cheese.

(3). The quality is also affected by the *low fat content* resulting from an unscientific treatment of the curd; no special knife is used but the curd is simply crushed, thus causing, according to EKREM RÜSTÜ, a heavy loss in fat content an also in albumen. By a proper treatment of the curds, at least some of the alimentary substances may remain in the cheese, which otherwise pass into the whey or the heating water.

(4). The addition to sheep's milk of *cows' milk* in the Kars district and of *goats' milk* in Thrace, also affects the cheese by lowering the fat content, as these two milks are less rich in fatty material than that of the sheep. These additions are often made to obtain a sale for cows' and goats' milk, and partly also to improve the dirty colour of the sheep's milk, as the other two milks are obtained under better conditions.

(5). *A risk of abnormal fermentation* is set up by the uncleanliness of the entire establishment, especially of the utensils used, and in particular the conditions of the ripening rooms which being too much affected by the outside temperature accelerate unduly the ripening process.

An observed example of a farm in the Kars district shows that a suitable plant for cheese ripening can easily be constructed; it consists of a clay chamber partly under ground; the part which lies above ground is covered by a thick roof of reeds and clay, which is placed obliquely against the outer partitions. This building contains a warm and a cool ripenin room.

(6). The small establishments which prepare the Kaşar cheese generally have only a limited capital, and are obliged to send the cheese to market before it has attained the necessary degree of maturation of a good quality cheese. For export, however, proper ripening is indispensable and the cheeses should remain in the cellars for weeks and sometimes months before they are ready for export.

In the State depots, cheeses destined for export have to be fully ripe; they are partly prepared in the Government dairies and partly supplied by the peasants or by owners of small cheese factories. In these depots, an attempt is made, by special methods and by grading, to obtain the best results from the material of varying quality received, and to correct the defects of the products of the small cheese factories. Such establishments have shown themselves to be very valuable in Algäu. These depots alone can supply the uniform product required for export, according to certain established standards of composition, consistency, content in fat and in dry matter, colour, smell and taste. It is especially necessary to inspect the composition of the cheese, so as to as certain whether it has been prepared with pure sheeps milk or a mixture, because on this depends chiefly the nutritive value and quality of the cheese.

As a rule, the peasants do not themselves manufacture the Kaşar cheese, but they enter into contracts with the owners of the cheese industries before the lactation period, by which they pledge themselves to supply, for a fixed period, all the milk obtained from a certain number of ewes. Generally a partial advance payment is made. Sometimes, the peasant has to reimburse a certain sum, usually 50 kurus (piastres) per ewe, if the number of animals which can be milked is less than as specified in the contract, sometimes only if this number is lower by 10 per cent or over.

Sometimes the price of the milk is fixed by the contract, sometimes the price in the neighbouring districts is adopted, and sometimes the price is settled only after the sale of the cheese and after the costs and profits of the cheese manufacturers have been deducted, so that the peasant is completely at the mercy of the factory owner. Only a breeders' union could protect the peasants from these abuses. According to EKREM RUSTÜ, an arrangement was found at Edirné which may serve as an example; the Kivirdjik sheep breeders' association comes to an agreement with the cheese manufacturers as to the price of the milk taking as a basis the prices quoted on the Istanbul market for the best quality Kaşar cheese from the 15th of July to the 15th of October; afterwards, the price for every region is established and communicated to the breeders.

In the interest of the peasant producers, it would be desirable if this organisation of breeders' associations such as is now in existence at Edirne, could be extended to the whole of the country. It would also be advisable to organize small model State cheese centres in the principal cheese producing centres, chiefly in Thracia, Bursa, Ismir, (Smyrna), Afion and Kars, so as to place on the market a high quality product, to have an educative and stimulating influence on the peasants and to assure to them the sale of their products at good prices.

For the sale of wool and of sheep for meat, the same conditions as for the sale of milk are found to exist. The wool merchants go from one farm to another and buy up the small owners' stock of wool. Often, at the moment when the sheep tax must be paid, the peasant accepts an advance from the dealer whose object is to obtain the entire clip without previously settling the price of the wool. This is usually fixed by the dealer after the shearing, and in this way, the peasant only receives half or even less of the amount which the dealer obtains from the sale of the wool.

So as to encourage the peasants to improve their sheep breeding, by enabling them to increase their returns from the sale of wool, Government organizations should be set up to buy the wool at fair prices fixed by competent officials. If the peasant were to receive for his wool the price which the agent receives from the factories for very coarse wool, that is to say, 40 kurus (piastres) per kg. of unwashed wool, he would be able to pay from his profits the 60 kurus tax established by the Government on Karaman sheep. Actually he has to utilize a considerable part of his profits from the sale of the ewes' milk to pay this tax.

The low prices offered for Turkish wool is due to absence of any standardisation; sometimes the wools are very dirty and mixed with vegetable substances, sometimes they are black, white or of mixed colours, and often contain all sorts of residue which diminish the value. It would be the business of these organizations to grade stabilize those wools to be used by the national industries and those destined for export. Table XXV gives a general survey of the wool exports (sheeps' wool + goats' hair) from 1930 to 1934.

TABLE XXV. — *Wool exports from 1930 to 1934.*

	1930	1931	1932	1933	1934
Kilograms	293 000	131 000	31 000	5 477 678	6 332 970
Turkish pounds per kg	0 67	0 56	0 45	0 34	0 55

It is thus seen, that the export of wool greatly increased in 1933 and 1934. In 1933, it represented 18.69 per cent. of that of 1930, and in 1934 21.61 per cent; on the contrary the price fall in 1932 and 1933 must be noted. The lowest export price paid was in 1933; it represented 51 per cent of the price established in 1930; in 1934, the price increased to 82 per cent. of the 1930 price. Although the carded wool spinning industry of Brusa is again in full activity and utilizes the medium quality wool of the country, a larger volume of exports might be expected in view of the considerably increased production noted during the last few years in this region.

The dealers buy beasts for slaughter from the peasant in the same way as the wool. When the peasant is in need of money, he often slaughters the animals, regardless of their state of nourishment, as he never fattens them before killing. The dealer collects all the sheep bought and culled from the flocks, and drives them off or sends them by boat or rail to other districts where a more favourable sale can be obtained. However, in years when forage costs little, he fattens them up a little before selling them to the abattoirs.

As in the sale of the wool the peasant receives a far smaller recompense for work than the agent. Much might be done to enable the peasants to obtain a better return from their sheep farming, by the formation of associations for the sale of meat, controlled and subsidized by the Government. Table XXVI clearly shows that there is a considerable export of sheep and goats.

TABLE XXVI. — *Sheep and goat exports from 1930 to 1934.*

	1930	1931	1932	1933	1934
Numbers of animals	582 000	511 000	548 000	591 433	753 715
Turkish pounds per head	7·44	7·76	6.09	4 95	4.46

These figures show that the export of sheep and goats has increased since 1930 by 129.5 per cent. Exports to Russia have practically doubled, but the average 1934 prices do not represent more than 60 per cent. of the 1930. Thanks to the systematic organisation of foreign trade, a progressive increase in the export of sheep and goats may be counted on. Besides the adult animals, lambs and kids are also taken into consideration. The number of these young animals exported from 1930 to 1934, together with their average value is shown in Table XXVII.

TABLE XXVII. — *Exports of lambs and kids from 1930 to 1934.*

	1930	1931	1932	1933	1934
Number of animals	96 000	158 000	80 000	103 034	78 322
Turkish pounds per head	4·44	4·76	4·94	1.66	1.96

Lambs exports were greater in 1933 than in 1930, but in 1934 they diminished and did not represent more than 82 per cent. of the 1930 exports. The lowest price for lambs exported was that of 1933; it did not exceed 37 per cent. of the price in 1930. In 1934, prices again increased, up to 44 per cent of those in 1930.

In conclusion, it can be stated that the greatest increase in the export of animal products has been that of the wool. The export of adult sheep has also increased during the last few years while that of lambs has diminished. The export of cheese, so flourishing in 1930, no longer exists to-day.

The trend of the prices paid for the merchandise exported from 1930 to 1934, also shows the diminution of the returns from sheep farming in its various branches. In general, the proceeds from the meat production are of by far the greatest importance in the returns; next follows the income obtained from milk, and finally that from the wool. The price evolution shows that this return, which is the most decisive for the earning capacity of sheep breeding, is the one that has undergone the greatest diminution in comparison with 1930; the decline in income obtained from milk is less, while the decrease in returns from wool is the lowest of all. The lowering of prices was in inverse ratio to the importance of these three branches of production for the profit capacity of sheep breeding.

These decreased returns from sheep farming, the sheep tax which has never been lowered, and also the very high charges of the abattoirs, make State aid necessary for the peasant who raises sheep. In vast regions of Anatolia, as a result of natural and economic conditions, sheep breeding will remain for very many years the most important of all animal breeding. State aid need not necessarily take the form of payment of subsidies or of abolition of taxes; the same object could be attained if the Government were to organize a breeders' union and to systemize sales' methods. It is only by abolishing the middleman that the peasant will be able to increase his profits from sheep breeding and in this way an improvement in this branch of farming may be effected.

Prof. Dr. WALTER SPÖTTEL.
Director of the Ankara Zootechnical Institute (Turkey)
in collaboration with Dr. KADRI-BILGIMRE.

MISCELLANEOUS INFORMATION

XTH INTERNATIONAL SUGAR BEET CONGRESS, POZNAN-WARSAW, 18-23 JUNE, 1936. — This Congress adopted the following Resolution:

The Xth Congress of the International Confederation of European Sugar-beet growers assembled at Warsaw on 20 June, 1936 and celebrated the 10th anniversary of the foundation of a true union between the sugar-beet producers of Europe.

The memory of the late lamented founder and first President, HUGO CASALICCHIO was recalled with profound regret and best wishes were offered to the first directors of the C. I. B. E.: Messrs HUMNICKI, BRDLICK and FLEURANT AGRICOLA.

The Congress was happy to state that the work of collaboration between Members of the C. I. B. E. has resulted in a true unity of action on the part of the European countries in favour of the protection and organisation of sugar-beet growing in Europe.

The Congress drew attention, on this occasion, to the principles, which, for 10 years, have served as a basis for mutual action

(1) Sugar-beet cultivation constitutes an absolute necessity for Europe owing to the influence of sugar-beet production on agricultural yields, on the social condition of the rural population, on the campaign against unemployment, on stock-breeding and on the economic budgets of States.

(2) The sugar problem in Europe is not only a financial, industrial and commercial question, but primarily an agricultural and social question, in direct relation with the economic and cultural progress of the peoples. The protection which should be given by all States is based on the needs of intensive cultivation and farm labour, the condition of which is dependent, in numerous countries, on the degree of prosperity of sugar-beet production and vice versa.

(3) To allow the establishment of adequate prices under satisfactory protection, production should be adapted, in each country, to the possibilities of consumption and therefore, in certain cases, of normal and traditional exports. This need involves the obligation to apply quotas to sugar-beet growing and sugar production which should be carried out under the supervision of Associations of sugar beet growers, or mixed Associations, with a view to respecting integrally the rights of growers and the needs of farms, and on the basis of a mutual respect for the rights and duties relative thereto.

(4) Contracts refering to sugar-beet should be established with a view to arriving at an equitable division between cultivation and sugar production and, in proportion to their respective net costs, the receipts per ton of beets. The contracts should be drawn up after negotiations on a basis of complete equality between the factories and the sugar-beet growers' Associations with the intervention or arbitration of the State, when it is necessary to establish an indispensable equilibrium or to impose an agreement.

(5) It appears possible to the growers of sugar-beets that an international rationalisation of sugar production should be attempted through an International Sugar Conference, with the object of regulating the production of countries which supply their own needs to the level of their own consumption and to arrive at a practical distribution of the export markets between normally and traditionally importing countries.

Such a regulation should be based primarily on the needs of the peasant population and the sugar-beet growers Associations in every country and the C. I. B. E should be closely associated with all these negotiations.

The development of production should be attained by a constant increase in consumption for which purpose all countries should organise efficient propaganda. The utilisation of surplus products may be found in stock feeds in the form of treated sugar or dried cossettes, in fuels in the form of alcohol so as to avoid the disastrous accumulation of stocks.

The growers should be grouped in powerful National Sugar-beet Growers Associations supplied with the necessary means of action, chiefly in the form of a compulsory establishment of contribution quotas to be raised through the intermediary of factories.

The Congress, while restating these principles as the basis of the mutual activities of the European Sugar-beet Growers Associations, stated that the frequent lowering of the price of sugar-beets in many countries impedes the economic rehabilitation of Europe and recommended that all States should make every effort to increase the price of sugar-beets to the level of the net costs.

The Congress recommended that the campaign against the competition from saccharine should be made general, principally through a rigid control of imports with a view to suppressing contraband.

The Congress gave a mandate to the Bureau to carry out immediately a triple enquiry:—

(1) on the use of treated sugar or dried cossettes in stock feeding;

(2) on the net costs of sugar-beet cultivation and the compared receipts from cultivation and manufacture in the contracts of the different countries;

(3) on the methods of scientific and technical control of the beet leaf bug in collaboration with the Institutes for sugar-beet research.

DEFINITION OF A SOUND CACAO BEAN. — The International Cacao and Chocolate Office, an international association with a scientific objective, (Headquarters Rue Ducale 69, *Brussels* - Telegraphic adress: *Chocolatiers Bruxelles*), has forwarded us the following text of a definition adopted by the Council on 6 July, 1936:

The sound cacao bean should have the following characterictics:

The interior of the bean should be from brownish red (light mahogany colour) to brown according to the place of origin, it should be well dried and streaked, should break crisply between the fingers. It should be whole, ungerminated and without smokey taste.

On the other hand, the principal defects in quality are -

(1) inherent defect;
(2) mould;
(3) infestation by insects;
(4) slatey colour.

The total proportion of defective beans should not be greater than 10 %, including a maximum of 5 % of beans showing inherent defect, mould or infestation by insects, and a maximum of 5 % of slate coloured beans.

(By " inherent defect " is meant a defect inherent in the bean itself, that is, the possible consequence of inadequate fermentation or drying and manifested by a mould in the interior of the bean. This defect is not apparent on external examination and the bean must be opened before it can be observed. It is very necessary to mention this defect, which is of capital importance and should not be confounded with deteriorations such as are caused by mites or external damage resulting from damp warehouses or rain).

BOOK NOTICES *

Soil Science.

STREMME Hermann (Danzig), *Die Böden des Deutschen Reiches und der freien stadt Danzig, Erlauterung zur Uebersichtsbodenkarte* 1:1 000 000 *des Deutschen Reiches und der freien Stadt Danzig,* Ergänzungsheft Nr. 226 zu *Petermanns Mitteilungen,* herausgegeben von Paul Langhans, 74 p. 14 Tabellen auf Tafeln und 1 Karte. Gotha 1936, Justus Perthes' Geographische Anstalt.

This important description of soils in the German Reich and the Free City of Danzig forms a brochure of 74 pages in quarto with 14 tables outside the text, of 1 page each, which represents the supplement No. 226 of the famous *Petermanns Mitteilungen,* published by the Geographical Institute Justus Perthes at Gotha. This description serves as a commentary to the fine synoptic coloured Map (scale 1 to a million) of soils in the German Reich and the Free City of Danzig, which is attached to the brochure.

This map published (as also the commentary) by Hermann STREMME, Director of the Pedological Institute of the Polytechnikum of Danzig, represents a real *tour de force* owing to the rapidity of its execution. In fact, it was drawn up in less than 10 years by Herr STREMME with the aid of several collaborators.

In the introduction (An historical survey of the cartography of soils in Germany) the writer recalls the point of departure of this work: in 1924, the International Pedological Conference at Rome decided to publish a synoptic Map of European soils. In 1925, the direction of this work was entrusted to Herr STREMME who realised the need for completing the cartography of German soils so as to bring it into line with that of other countries and, with the aid of many collaborators, undertook the work with the greatest enthusiasm.

The first result was a small general map of European soils presented to the Ist. International Congress of Soil Science at Washington (1927). This Map was afterwards revised and completed so as to be presented in 1925 to the IIIrd Congress of Soil Science at Oxford.

The Author realised that the new Map of Europe surpassed in several ways the map of Germany and that the latter still needed revision so as to conform to the former.

---

* Under this heading are included short synopses of books recevied for review.

However, with this reservation, it may be said that the map of Germany constitutes a valuable document, showing the diversity of soils in that country, among which the author mentions 21 genetic *types* according to the GLINKA classification (that is, based on the *genesis* of soil formation) and VIII *classes*, based on the degree of finess and on the mineralogical nature of the soils.

The Commentary to this map, in which the agronomical side of the subjects treated is constantly kept in mind, has a dual merit: (1) it gives an historical survey of the beginnings of cartography and of the estimation (" Bonitierung ") of soils up to the THAER classification; (2) it gives a clear idea of the various categories of soils now under consideration.

The following is a summary of the contents of the Commentary

I. — Historical survey of soil cartography in Germany.

II. — Soil : classification and denomination (THAER classification — Estimation of soils for taxation purposes from 1861 to 1864 in Prussia — Geologico-agronomical cartography — Classification of soils by R. RAMANN — Geneticomorphological classification of soils (including a theoretical section and a description of various types of German soils in systematic order)

III — Descriptions of types of land shown in the map (Territories in the plains — Territories with types of soil derived from parent rocks - Territories with a predominance of sloping land)

IV. — Soils of Germany within the scheme of European soils.

The Tables outside the text, one to each page, supply important graphic and statistical data on the composition, estimation and yields of various German soils since the time of THAER up to the present day.

T B.

Animal Husbandry.

Tierheilkunde und Tierzucht, eine Enzyklopadie der praktischen Nutztierkunde, unter Mitarbeit von mehr als 130 Fachmännern herausgegeben von Dr Valentin STANG (Berlin) und Dr David WIRTH (Wien), Lieferung 53 (Ergänzungsband), pp 145-288, 58 Fig. Berlin-Wien 1936, Urban & Schwarzenberg

This Bulletin has on several occasions referred to the Encyclopedia *Tierheilkunde* and *Tierzucht*, which was begun in 1925 and completed in 1932 and is in 10 volumes

Zootechnical and Veterinary Science has however during the period made remarkable progress which should be taken into account. The two scientists, who have published this Encyclopedia, have therefore considered it desirable to add a supplementary volume, of which the second part has just been issued (2 months after the 1st). The two parts of the volume contain, in alphabetical order, a great number of important articles, prepared by the highest authorities in their respective departments. Conspicuous among them are contributions on: Kinds of bacon Artificial fecundation — Stunning of animals by electricity — Meat testing — Prevention of slipping in horses. As however the majority of the articles published in these two parts are of a veterinary character, they are not suitable for analysis in this part of the Bulletin.

Further notes on the remaining parts, which will complete this supplementary volume of the Encyclopedia, will be given as soon as they are published.

S. T.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

Bonadonna T. Un viaggio nell'U. R. S. S.: impressioni, il problema agricolo, il problema zootecnico. Brescia, G. Vannini, 1936. [279] p.

Grist D. H. An outline of Malayan agriculture. Published by the Department of agriculture, Straits Settlements and Federated Malay States. Kuala Lumpur, [Singapore, Printers ltd., impr.], 1936. XIII, 377 p. (Straits Settlements. Department of agriculture. Malayan planting manuals, nº 2).

Agricultural Research.

Scottish society for research in plant-breeding. Report by the Director of research to the annual general meeting 30th July 1936. [Edinburgh, Blackwood & Sons], 1936. p. 29.

Agricultural Education.

Welsh journal of agriculture - v. 12. The Journal of the Welsh Agricultural Education Conference. Published by the University of Wales Press Board (Cardiff). [Wrexham, Woodhall, Minshall, Thomas & Co. 1936], 241 p.

General Agronomy.

Commercial fertilizer, Atlanta, Georgia Year book 1936. Atlanta, Georgia, 1936. 142 p.

Crops of Temperate Regions

Fliaksberger, K. A. Хлебные злаки: пшеница. Общая часть составлена Р. Ю. Рожевиц. Москва [etc.]. Госуд. изд-во совхозной и колхозной литературы, 1935. (Культурная флора СССР. Под редакцией Е. В. Вульф, nº 1). (Наркомзем СССР. Академия сельскохозяйственных наук им. В. И. Ленина. Всесоюзный институт растениеводства.
[Cereals: Wheat].

Petersen, A. Die Gräser als Kulturpflanzen und Unkräuter auf Wiese, Weide und Acker. Berlin, R. Kühn, [1936]. 220 p.

Tropical and Subtropical Crops.

Cotton year book 1936. 31st year of issue. Manchester, « The Textile Mercury ». [1936]. 784 p.

Cijselman & Steup, Koffee statistiek voor nederlandsch-Indie voor het jaar. 1936. Coffee statistics for the Netherlands East-Indies. 1936. Soerabaia, Makelaars, [1936] 25 p.

Karachi cotton association. Karachi cotton annual 1934-35. No. 2. Karachi, Cotton Association, [1935].

Sampson H. C. Cultivated crop plants of the British Empire and the Anglo-Egyptian Sudan (Tropical and Sub-Tropical). London, H. M. Stationery office, 1936. VIII, 251 p. (Kew. Royal botanic gardens. Bulletin of miscellaneous information. Additional series, 12).

Horticulture.

Haasenkopf S. Zdravý strom budoucnost ovocnictví. [Praha, « Ustř. jednota čsl. sl. zahradnictva », 1935]. 143 p.
[A healthy tree is the basis of fruit cultivation].

Stellwaag F. Gesundes Obst durch planmässige Schädlingsbekampfung. 2 umgearb. Aufl. Nürnberg, Obst- und Gartenbaubedarf Bayern. [1936]. 115 p.

Animal Husbandry.

Stang V. n. D. Wirth. Tierheilkunde und Tierzucht Eine Enziklopädie der praktischen Nutztierkunde. Berlin, Urban & Schwarzenberg, 1936.
Lieferung 52. (Ergänzungsband).

Staroń J. Organizacja wywozu artykułow zwierzęcych. Warszawa, Nakładem Polskiego związku eksporterów bekonu i artykułów zwierzęcych, 1935, [107] p.
[The organisation of exportation of products of animal origin].

Wojtyna J. Handel mięsny w świetle organizacji rynku warszawskiego. Warszawa, Nakładem « Gospodarki narodowej » [1936]. ([154] p.
[Commerce in meat according to the organisation of the Warsaw Market].

Rural Engineering

Pane R Architettura rurale campana. Firenze. Rinascimento del libro, [1936] p. 17.

Forestry.

Mayer-Wegelin, H. Ästung. Hannover, M. u. H. Schaper, 1936. 178 p.

Annual review of biochemistry edited by J. M Luck. v. 5, Stanford university California P. O , 1936, 640 p.

6ème Congrès International de botanique Amsterdam 2-7 Sept. 1935. Proceedings v. I. II. Leiden, E. J. Brill, 1936. 2 vols.
v. I.: Report of the activities.
v. II : Abstracts of sectonal papers

Periodicals (1), (2), (3).

Algodão. v. 1, 1934. mens. Rio de Janeiro. 20$000 int.; $ 3.00 étr.

Argentina. Ministerio de agricultura de la nación. Dirección de minas y geologia. *Boletín.* nº 35, 1933. irr. Buenos Aires.

Balgaria. Ministerstvo na zemedelieto i darjavnite imoti. Sloujba za zachtchita na rasteniiata. *Oupatvane.* nº 1, 1935. irr. Sofia. [Ministry of Agriculture and State Lands. Plant protection service. *Publications*].

Boletim da Academia das ciências de Lisboa. n. s. v. 1, 1933. mens.

---

(1) Previous list June 1936. To be continued December 1936.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice montlhy); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); nº. (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series): trihebd. (every three weeks), v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

Boletín agrícola. v. 6, 1932. mens. Medellín (Colombia). (Sociedad Antioqueña de agricultores).

Boletín de la Asociación venezolana de productores de cacao. v. 1, 1936. mens. Caracas.

Bollettino del Laboratorio sperimentale e R. osservatorio di fitopatologia. v. 13, 1936, mens. Torino. [Formerly: « La difesa delle piante contro le malattie ed i parassiti. Bollettino del laboratorio...].

Cawthron institute. *Publication*. nº 1, 1935, irr. Nelson, New Zealand.

C N A. Revista del Centro nacional de agricultura. v. 1, 1936. mens. San Pedro de Montes de Oca (Costa Rica).

Deutsches Reich. Reichsnährstand. *Flugschriften*. nº 34, 1935. irr. Berlin.

Duke university. Durham, North Carolina. *Forestry bulletin*. nº 1, 1935, irr.

Federal register. v. 1, 1936. q. Washington, D. C. $ 10 (Division of the Federal register, National archives).

Field & laboratory. v. 1, 1932, sem. Dallas, Texas. (The science departments of Southern methodist university).

Government publications. 1936. mens. London. (H. M. Stationery office). [Cumulative: « Monthly list of Government publications » and « Monthly circular: a selection from recent publications »].

Great Britain. Imperial bureau of soil science. Summary of recent reports. 1931. irr. Harpenden, Herts. [Mimeographed].

Iarovizatsiia. Journal po biologii razvitiia rasteniï. v. 1, 1935. bimestr. Odessa. Rb. 9. – (Selektsionno-genetitcheskiï institout) [Jarovisation. Journal of biology of plant breeding (Plant breeding and genetics institute)].

Indian forest records. (New series). *Entomology, Silviculture, Utilization*. v. 1, 1935. irr. Dehli. (The Forest research institute, Dehra Dun). [Formerly: « Indian forest records »].

Land settlement. 1936. irr. London. (The Land settlement association).

Lighter. v. 5, 1935. trim. Ottawa. (Tobacco division, Experimental farms branch, Dominion department of agriculture).

Messo i mleko. (Fleisch und Milk. La viande et le lait). v. 1, 1936. mens. Sofia 80 Lv. int.; 150 Lv. étr. [Title and abstracts in Germany and French also].

Plovdiv. Darjavna zemedelska opitna stansiia. *Troudove*. nº 3, 1935. irr. [State research station agriculture. *Publications*].

Quaderni della nutrizione. v. 1, 1934. bimestr. Bologna. L. 80 int.; L. 100 étr. (Commissione per lo studio dei problemi dell'alimentazione. « Consiglio nazionale delle ricerche »).

Queensland. Bureau of sugar experiment stations. *Farm bulletin*. nº 1, 1931. irr. Brisbane.

Revista de agricultura de Puerto Rico. v. 27, 1936. mens. San Juan. $ 0, 50 int.; $ 1.00 étr. [Publication discontinued in June 1931 (vol. 36, nº 12) and temporarily replaced between 15 of August and 9 of April 1932 by: " Boletín agrícola "].

Soil conservation. v. 1, 1935. mens. Washington, D. C. $ 1,00 int. (Soil conservation service. U. S. Department of agriculture).

Solo. v. 26, 1934. mens. Piracicaba, Est. de São Paulo. 10$000.

Tchirpan. Darjavna zemedelska opitna i selektionna stansiia. (Staatliche landwirtschaftliche Versuchsstation in Tschirpan). nº 2, 1935. irr.

Terra. Rassegna mensile dell'Italia fascista. n. s. v. 10, 1936. Roma. [Publication discontinued in 1934-1935].

Textilia. « Le Industrie tessili ». v. 11, 1936. mens. Milano. L. 40 [v. 1-7 published under the title: " Le Industrie tessili "].

Trinidad. Imperial college of tropical agriculture. Low temperature research station. *Memoir*. nº 2, 1936. irr. St. Augustine, Trinidad, B. W. I.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

ACTION OF HEAT AND LIGHT RADIATIONS ON THE LIFE OF PLANTS. HEATING AND FORCING PLANTS IN THE OPEN AIR

(*2nd Part*) *

SOLAR ILLUMINATION AND DIFFERENT SOURCES OF ILLUMINATION. APPLICATION OF DIFFERENT LIGHTING METHODS.

Solar illumination varies greatly according to circumstances. At mid-day, in full sun, the soil receives often 40 000 lux, while on a dark winter day, at mid-day, the illumination falls to 1 800 lux or even less. The light received varies greatly with the degree of obliquity of the rays, with the density and conditions of the atmosphere traversed, the latitude, the seasons and the hour. The proportion of diffused light in relation to the direct light is, on a clear day with few clouds, only about $^1/_5$. The profound differences, due to the varying exposure to the sun of crops, are therefore clearly understood and also the importance of espalier walls and their covering according to the proportion of visible and infra-red light they reflect and diffuse. In glass houses or under frames, the sunlight is further reduced by the proportion of reflected light, which is very great when the incidence of the rays on the glass lights is oblique, according to the radiations absorbed by the glass, *viz.*, the longest infra-red rays and the ultra-violet comprised between 0.36 and 0.37 μ, and is also reduced by the fraction of white light absorbed by the opacity of the glass and the dust deposited thereon. Even if it were possible to have glass houses made of special glass or artificial glass composed of synthetic resins allowing the passage of a larger quantity of radiations, the fact remains that the principal surface of the glass house should be turned towards full south and oriented in particular to the rays of the sun at mid-day in autumn and winter. This inclination should be calculated in function of the latitude. When plants are in the heated glass house, lighting is even further reduced when all the functions are stimulated by the heat. Lighting may be so feeble as to approach the point of compensation between respiration and assimilation and the plant does not grow or grows in such a way that it is far from receiving the quantity of light sufficient for building up its organic substances. It is, therefore, a physiological error to heat plants without giving them the corresponding lighting. This rule is chiefly important for young plants or shoots which have the most marked assimilation requirements and the future development of which is determined by their vigour when young. It is chiefly the plants with small requirements in light which may be cultivated with the maximum yield in glass houses, but possibilities of cultivation in glass houses are indefinitely extended when artificial lighting is judiciously utilised besides other growth factors, such as manure, carbonic fertiliser, etc.

---

* The 1st part of this article appeared in this Bulletin. No. 9, 1936.

Infra-red radiations and moisture. — Given that the greater part of the calorific energy of the solar spectrum is found in the infra-red rays, a systematic study of these radiations will be of great value alike at sea level and in the mountains and in regions differing in climatic conditions. The infra-red rays convey a quantity of energy 5 times greater than the visible rays and 18 times greater than that of the ultra-violet region (for medium heights of sun). This study will allow measurement of the vapour content of the whole atmosphere and establishment of the rôle of infra-red radiation in the general balance of the energy of radiation. The great influence exercised by the transparency of the atmosphere on the long wave rays and the reaction existing between the quantity of water vapour contained in the atmosphere and the intensity of the absorption bands (4) is given in Tables I and II.

TABLE I. — *Intensity of the absorption bands in function of the quantity of water vapour in the atmosphere.*

Logarithms of transparency	0.748 0.791	0.789 0.836	0.800 0.848	0.849 0.863	0.857 0.849	0.977 0.972	0.979 0.985
Quantity of water vapour . .	0.540	0.438	0.370	0.275	0.244	0.020	0.013

TABLE II. — *Intensity of solar radiation and quantities of water vapour contained in the atmosphere for a sun height of 30°.*

Intensity (calories per cm² and per minute)	Absolute humidity
1.35 calories	2.8 mm
1.25 »	4.8 »
1.15 »	6.4 »
1.05 »	8.7 »
0.95 »	11.6 »

All variations, therefore, in the content in water vapour of the atmosphere have a considerable influence on the intensity of infra-red radiations which, in relation to the total radiation, undergoes considerable displacements. In winter, for example, although the sun is low, the atmosphere becomes, according to the lesser degree of water vapour it contains, more transparent to these radiations; hence, in the month of January the values at mid-day of the infra-red radiations are, on a normal surface, the same as in June, that is, respectively: 0.70 and 0.71 small calories. The annual trend of radiations shows the parallelism between the total radiation and the infra-red radiation though the amplitudes are different. The maximum observed in April may be explained by the fact that the quantity of water vapour increases from January onwards at the same time as the height of the sun. The intensity of the infra-red radiations also increases, but from May onwards the influence of water vapour is counteracted by the influence of the height of the sun and a quantity of the infra-red radiations begins to decrease, the minimum, which is reached in August, being due to the fact that this month is characterised by a maximum value of water vapour. Hence the displacement of the curves of solar radiation in function with the fall of water and the absolute humidity existing in the various seasons in different climates.

Consequently, the cycle of biological development of the plant may be considered as a direct function of the binomial radiation-humidity as a modification of these factors is followed by a displacement and a variation in the seasonal, daily, hourly, biophotosynthetic reactions.

ARTIFICIAL SOURCES OF LIGHT.

Sun light varies greatly according to circumstances and is further reduced in a glass house or under a frame, hence the necessity for keeping, for each plant, the most suitable nutritive equilibrium.

As has already been said, a serious mistake is made, or rather a veritable physiological heresy, according to CHOUARD, is admitted, in heating plants without giving them the corresponding lighting so as to obtain the maximum assimilation in the plant synthesis. The results obtained at Wageningen and many other scientific institutes and agricultural experiment stations for subsidiary lighting in glass houses, have led to multiplication of experiments for obtaining the most benefit from artificial sources and optic devices.

Incandescent lamps. — The maximum energy emitted by these lamps is situated in the infra-red rays. The glass of the bulbs absorbs also the ultra-violet rays towards 0.34 μ. The excess of infra-red determines an excessive heating and the light produced is very different from that of the sun. However, these lamps are sufficient to complete the hours of lighting at a low intensity necessary for the plant photoperiodic requirements in long days; they are excellent for stimulating germination, but should not be relied upon for the complete development of the plant without special precautions: screens against infra-red rays, rotating apparatus or ventilation against over-heating, etc., or in a damp environment where the humidity prevents heating.

If it is not always easy to replace all the natural light by these lamps, they are at least of use in raising or prolonging inadequate solar illumination.

In incandescent lamps at a higher temperature, the light emitted tends to approach that of the sun: the maximum energy is in the infra-red, but is displaced towards the visible rays: these high-voltage lamps of high yield capacity give a whiter light and richer in red, violet and ultra-violet rays. The use of bulbs in special glass (Uviol, etc), allowing the passage of ultra-violet rays up to 0.29 μ may perhaps be of value. In any case, the yield, in cultivation, of the high-voltage lamps is always better, but it should be noted that these lamps have a very short duration (100 to 500 hours) and are too costly for practical purposes.

Atomic stimulation lamps. — These are lamps in which an electric charge passes through a gas or vapour and causes the atoms to emit an intense, discontinuous light formed of certain isolated radiations which differ profoundly from white light.

The Mercury vapour lamp. — Produces a large number of infra-red, green, blue, violet and chiefly ultra-violet rays, both long and short, the latter very injurious to plants and requiring to be intercepted by special filters. This lamp gives considerable supplementary radiations useful for the synthesis of nitrogen substances, pigments and vitamins, but alone does not give sufficient energy for photosynthesis.

Certain special lamps (Sunlight, Solarea, etc.) combine incandescence with mercury vapour, but they produce an excess of infra-red in relation to the *red useful* for chlorophyll functioning.

Neon lamps. — This lamp produces, by means of discharges into this gas, a red-orange light which however contains almost no infra-red or ultra-violet. Certain of the rays emitted fall just within the absorption bands of chlorophyll. This, therefore, is the best lighting for obtaining the best assimilation results without having an excess of infra-red as compared with the red useful for chlorophyll functioning. Lightings with neon lamps expressed in lux have not the same signification as the lux of white light; the energy of the neon lamp is much more utilisable for photosynthesis: 30-40 lux-neon correspond, for the plants, to about 200 lux-white, without producing an intense disengagement of heat which weakens the plants and makes them grow too fast in height. The numerous trials carried out in the glass houses of the Agronomical Institute of Wageningen (Netherlands) in 1933, 1934 and 1935 prove that this light stimulates development in all the tissues of young plants. This advantage obtained, when young, during the winter is mantained even in supplementary lighting and definitely improves forcing practices. This winter stimulation of development of a series of crop plants is completed by the use of certain manures with rapid action applied during the cold season (for example, winter treatment of wheats with nitrates, GIBERTINI system, etc.), which has a very favourable influence on yields.

The modern neon tubes are directly supplied at low tension and are more efficacious and more durable than the former high tension tubes. The trials carried out on numerous plants have enabled the most satisfactory duration of irradiation to be ascertained; this duration sometimes reaches 8 hours and the treatment should take place preferably at night. The optimum lighting varies, according to the plants, from 500 to 1 000 lux. The leaves of the plants subjected to the luminous flow of neon are a fine dark green. The content in sugar and in starch is improved. The neon lamps employed are 150 watts (250 volts) or 600 watts

(380 volts). They are furnished with a parabolic mirror in chromium plated metal and are mounted directly in the electric supply system, without any danger to the grower. The apparatus reflecting the artificial lighting should not allow the light emitted, on the side opposed to the plants to be irradiated, to be lost. The lighting in the plan of cultivation should be as uniform as possible. The inner surface of the reflector should reflect all the radiations without absorbing the ultra-violet: aluminium powder or plates of that metal appear to be the best form of lining.

Sodium vapour lamps are fairly good for photosynthesis, but give a yield inferior to that of neon lamps. Arc lamps should be excluded.

In this study of lamps with a white light, a cold light and with atomic stimulation, some reference may also be made to the economic importance of lamps in which the light emission is not effected by metallic filaments, but by oxides as conductors at high temperature. From this point of view, the well-known NERNST lamp, functioning in the open air, may be made with a mixture of oxides so as to reach a certain optimum of useful radiations and at the same time constituted in the best conditions required for giving a uniform radiation, while consuming less current than the ordinary incandescent lamps. The NERNST lamp may also, which is not possible with other combined lamps, be immersed in a gas (neon, etc.) or in a mixture of gas and vapours suitably selected.

In the *Revue Horticole*, 1936, No. 1, p. 17 (5), a figure shows the absorption spectra of chlorophyll compared to the emission spectra of neon and mercury.

Other sources of illumination. — Heating and lighting may be carried out with advantage by acetylene, the light of which is very active, mixed with other hydrocarbides either gaseous or in vapour introduced under pressure. The acetylene is burnt with air in tubes filled with water and supplied with glass inspection apertures. While attaining the greatest economy, it is possible to avoid the passage of injurious ultra-violet rays and the danger of over-heating the plant.

INTENSIFICATION OF SOLAR AND ARTIFICIAL LUMINOUS IRRADIATION.

There are various types of reflectors, refractors and diffusers which concentrate the light of various lamps uniformly within a given field. However, up to the present, sufficient attention has not been given to the advantages, even economic, which may be obtained: (1) by concentrating still more, on a given space, the intensity of the solar rays without injuring the natural irradiation; (2) in compensating, by means of auxiliary artificial irradiations more or less rich in certain rays, according to the plants and their state of development, the insufficiency of solar irradiation in the various environmental conditions. The use of concentrating prismatic plates, which are veritable prism lenses of the FRESNEL type and which, optically, correspond to an ordinary convex lens, may be of great utility, especially if double concentrating and diffusing prismatic plates are used. The difficulty in the precise adjustment of the system, when it is a question of solar irradiation, is easily overcome by using a series of simple and inexpensive devices, chiefly well known ones depending on the numerous types of bulbs now existing, such devices making it possible to vary the electric capacity under the influence of the light or generating directly small quantities of electricity capable of influencing various types of electro-magnetic apparatus.

It is possible without much expense to place, either on the radiant heating panels invented by BIGEAULT, or on supports or espaliers of any kind, horizontal tubes made of rustless steel or some other rustless metal; other tubes, smaller in diameter, might project from these, forming an angle with them, and on these there might be arranged simple flasks or strong receptacles of ordinary glass, filled with the water that passes through the tube. This apparatus may so constitute a system of inexpensive lenses, allowing the luminous rays to be concentrated on refractors or on simple reflecting plates of ordinary glass. In this way a greater intensity of light may be obtained, chiefly in the periods when ripening of vegetables or fruits is retarded by the diminution in the intensity of the heat and the light which may cause considerable loss in the harvest.

By rotating the principal horizontal tube on its own axis, it is possible to follow the displacement of the solar rays. Light paraboloid mirrors in chromium plated sheet iron and of wide extension fixed on the secondary tubes will allow the concentration of the luminous rays on the flasks or on the spheroidal glasses or on « Holophane » prisms which function as lenses.

INFLUENCE OF HUMIDITY IN THE CYCLE OF APPLICATION OF RADIANT HEAT TO CROPS.

It has been shown that, to gain an exact idea of the maximum benefits that may be obtained in the biological cycle of plants by luminous and calorific radiations at the different stages of development and fructification, it is necessary to take as a basis chiefly the relation existing between the light and the heat, in function of the humidity of the soil and the air surrounding the plant. Consequently the problem is somewhat complicated, as the possibilities of acting efficaciously on the development or on the fructification of a plant, under the various arid or humid climatic conditions, are linked with the possibility of supplying the plant, at the right moment, with the quantity of water necessary to establish an equilibrium between the circulation of water, the absorption of mineral and gaseous substances of the soil and the air, and the increase in transpiration and the biophotosynthetic activity set up by the different radiations absorbed or not absorbed by the chlorophyll. An excessive concentration of the circulating solutions, due to want of water, sets up injurious conditions in the constitution of the supporting tissues of the leaf parenchyma and in the formation and maturation of fruits; often the phenomenon of plasmolysis may even bring about the death of the plant.

When it is a question of practising forced cultivation in temperate, arid or humid countries, it is necessary to establish, side by side, installations for the emission of radiant heat and some subsidiary forms of equipment which, chiefly in open air cultivation in dry regions, restore to the plant as far as possible the quantity of moisture lost, doing so either by means of irrigation or by condensation of atmospheric humidity, or by rendering the air moist, or by the well-known systems of dry farming or by other systems for the prevention of loss of moisture in the soil and the air. The loss of moisture is the more important in proportion as the calorific rays striking the plants are stronger.

In the practical application of systems of heating and forcing plants in glass houses and in the open air, the important study by V. NEVEN (6) on the means of improving hydrogenesis in arid regions, may be useful, as he examines, not only the various systems for collecting water and irrigating, but also the systems of utilisation of the forces of nature, in particular of utilising solar heat, which enable the raising of subterranean water to the surface and its distribution Thus, besides the numerous apparatus for utilising wind, etc., the various apparatus utilising solar heat (solar factory, BERLAND CANFOURMIER system, DESSOLIERS, DUCLAUX, DAUVILLIER and GINESTOUS apparatus, etc.) which may be recommended to a greater or less extent, it will be seen that, from the economic and practical point of view, advantages may be obtained by utilising the heat lost in combustion at the same time as that of carbon anhydride, so as to re-heat the irrigation water while enriching it in CO_2, or again to transport a certain quantity of air saturated with water vapour, which, by expansion and fall in temperature, precipitates in part, and renders moist the air surrounding the plant. A quite simple and economical method of heating water by solar heat and the system of thermosyphon circulation have already described in this *Bulletin* in 1931 (7). As to the systems of rapid condensation for the utilisation of the water vapour contained in the atmosphere, there are a certain number, among which one of the best known is the *aerial well* invented by KNAPEN. It is certain that the yield of these aerial wells will be increased considerably if, utilising some kind of natural or artificial heating installation, at the same time there is installed one of these simple refrigerating apparatus (for example, the Electrolux type), with the aid of which, without any recourse to mechanical devices, it is possible to lower the temperature of the air and thus to bring about a greater precipitation of water. The use, certainly more complicated, but valuable in some regions, of wind mills may be advisable, especially if account is taken of the possibility of refrigerating, with a jet of water drawn from the soil or from a condensation tank, a series of communicating spherical or ellipsoidal surfaces in which the air circulates. Mention should be made, apart from the use of any of the various systems, of simple collections of siliceous pebbles, suitably arranged round the foot of espaliers or radiant panels (BIGEAULT system) (8) which may set up, especially in certain regions, nocturnal precipitations of water considerably greater than the normal precipitations.

THE BIGEAULT SYSTEM.

This new system of heating, utilising radiant heat to replace closed glass houses thus allowing plants to develop in the open air in a suitable temperature in all seasons, was invented by BIGEAULT. In the open air, the plant receives the infra-red rays emitted by patented blocks or panels in concrete, containing serpentine hot water tubes, the temperature of which does not exceed 40°: the calorific radiations traverse the air without heating it. These radiations are absorbed by the plants, while the air is only heated by contact with the panels, or with walls touched by the warm rays. This phenomenon may be compared, as has already been said, to that produced by solar rays which, without noticeably heating the air, traverse it and strike the soil or a wall and heat it in proportion to their strength. It is in contact with the over-heated soil that the surrounding air is heated in its turn, becomes lighter and rises in the atmosphere in " thermal " columns. With the BIGEAULT system, in consequence of the even temperature maintained at all points, eddies in the air are not observable, hence the possibility of more economical and satisfactory heating of glass houses, forcing beds (9) and plants in the open air. The dark calorific rays emitted by walls at low temperature may, therefore, solve the general problem of heating and the method has the following advantages:

(1) Complete absence of eddies in the air owing to the evenness of the surrounding temperature;

(2) Suppression of dust, remarkable impression of comfort, elimination of over-heating of the locality;

(3) Maintenance of the hygrometric condition of the air which is not over-heated or dried up;

(4) Possibility of ventilation, without noticeable loss of heat and without appreciable reduction in the temperature of the room, so as to obtain more suitable conditions;

(5) Remarkable economy in fuel: at least 25 %.

To all these advantages must be added the possibility: of an environment not too favourable to the development of cryptogamic diseases (glass houses); of facilitating the respiration and assimilation of the plant and the aeration of the soil and the roots. In addition, evidence has been given of the advantages of solar light which has not passed through the ordinary lights of a glass house, and the beneficial influence it exercises on the plants.

The first tests in heating with the BIGEAULT system, using radiant blocks of a special shape and composition (See fig. 1, 2, 3) or E. N. B. blocks, placed 0.40 to 0.30 m. apart and containing special steel tubes for hot water circulation embedded in the concrete and maintained at a temperature of 40° at the most, rendered possible the development, in the radiant trenches, thus constituted, of plants of the most varied kinds (azaleas, hortensias, camellias, *Prunus*, green plants and fruit trees, vegetables, strawberries, etc.) in the open air with temperatures of 11°C and during falls of snow 10 cm. deep. At the same time a system of tubes buried in the soil above the roots or in the cement of the floor of glass houses maintains in the soil an optimum temperature for the various plants (10).

The height, shape and arrangement of the radiant panels depend on the dimensions of the plants to be forced; radiant beds and trenches may be made as wide as 4 m. (in double hot beds, for example). The emission of the infra-red rays, the wave length of which is calculated, depends on the well determined temperature reached by the radiant blocks. At the International Congress on Heating held in Paris in December, 1934, astonishing results were shown given by the Bigeault system At the same time the

Fig. 1. — Complete installation of radiant blocks.

Établissements Moreux frères, Noisy le Roi (Seine et Oise), France

Fig. 2 Radiant silos *never having been covered*, Saint Agnan, (Saône et-Loire), France

Lilies, rose trees, cherry trees in flower, February, 1935

Fig 3 — Construction of radiant trenches for azaleas, hortensias, cyclamens, etc

Établissement Moreux frères, Noisy-le-Roi (Seine-et-Oise), France.

advantages were demonstrated of transforming glass houses by this system, which makes it possible to open them without danger for the plant ***whatever may be the temperature outside.*** The conditions of habitat for the plants were perfect; the beneficial influence of the radiant heat does not cease to act on the plants in contact with the cold external air. All the hot water circuits are controlled by electromagnetic sluices attached to the soil or air thermostats. This apparatus automatically cuts off the hot water in the circuit when the desired temperature has been reached. Self-registering thermometers show the curves of the surrounding temperature which vary 2° C between their maximum and minimum, at most. It is clear that a considerable economy in fuel is obtained with a system which, functioning at low temperature, only supplies the number of calories strictly necessary to the best development of the plants. As forcing in the open air has the great advantage of giving the plant all the available intensity of the rays of the spectrum as well as the infra-red rays, it is evident that a supplementary economy will be effected by closing the glass houses at night, or, in certain cases, covering the crops with matting or a trellis of galvanised iron filled with a synthetic resin permeable to the rays of the spectrum (containing urea, glyphtalic, etc.) functioning as lights. On the radiant walls, steel rods may be placed so that the trellis may be fixed or stretched over large surfaces, either by hand or with a small motor. In certain cases and on stormy days, these roller blinds may be very useful and very economical (owing to their small cost and the fact that they are unbreakable), especially for forcing plants the products of which are costly. In connection with economy, mention should be made of the Dutch invention of a new type of stove destined to be the ideal stove for horticulture: yield 87% of the calories of the coal consumed, absence of all mechanical apparatus, very little labour (only one charge of cheap coal every 48 hours). One of these stoves has been installed at St. Agnan resulting in great economies.

As has already been said, the scientific experiments and the applications carried out in France, England, in the Scandinavian countries, the Netherlands (new constructions at Amsterdam, Rotterdam, Groningen) etc., using the system of heating by radiant panels, have given very remarkable results especially in forcing on a large scale. In addition, numerous scientists have given their approval: Profs PINELLE, DUVERNOY, MARCEL, etc., and agricultural experts such as TRUFFAUT, ROYER, GESLIN, PONS, MORNAY, MOCQUART, etc., and M. PARISOT, one of the best known personalities in French horticulture.

The CRITTAL patented system of heating by radiant heat is now well known in all countries, and M. BIGEAULT has intensified a series of researches and applications in the field of horticulture. In a future article we will discuss the results obtained with the various crops during these last three years and the improvements made in the BIGEAULT-NESSI-CRITTAL system.

The experiments carried out in the largest centres of agricultural research (the Netherlands, France, Sweden, Belgium, etc.) prove conclusively that the maximum well-being for a plant, *i. e.*, its optimum degree of chlorophyll assimilation, is attained, when there exists an exact relation between the luminosity of the atmosphere and the temperature. As has already been said in the first part of this article, for each intensity of light there exists, in fact, one and only one temperature in which the plant's mechanism of assimilation functions with the greatest efficacy. Hence, the ratio heat: light should receive first consideration (adding to this humidity, and carbon anhydride). The complex action that the various radiations exercise on the plants requires, however, further and more detailed investigation so as to fix precisely the conditions of perfect development for each plant species, in its relations to the calorific and luminous radiations.

Forcing plants in glass houses and in the open air consequently includes a series of delicate problems relative to plant physiology in its various aspects, the solution of which requires close and continuous collaboration between scientist and farmer. The application of the BIGEAULT system and the lines here laid down may constitute an important progress in the practice of forcing plants by giving greater security of good agricultural yields both in quality and quantity.

G STAMPA.

References :

1) VON GESCHER N., La « iarovisation », nouvelle méthode de raccourcissement de la période végétative des plantes. — *Bulletin mensuel de renseignements techniques*, Rome 1933, N° 10, p. 438-445, bibliographie.
2) BOUTARIC A., Le rayonnement nocturne à grande altitude — *La Météorologie*, Paris 1935, N° 120, p. 102.
3) Le procédé SPANGENBERG : Germination du maïs pour l'obtention de fourrage. — *Bulletin mensuel de renseignements techniques*, Rome 1935, N° 2, p. 66-91, illustr.
4) KALITINE N. N., La radiation infra-rouge du soleil (quantité d'énergie mise en jeu dans l'atmosphère, radiations infra-rouges et influence de la vapeur d'eau) — *La Météorologie*, Paris 1936, janvier-février, p 36.
5) CHOUARD Pierre, Chaleur, lumière et radiations. Principe de leur action sur les plantes. — *Revue horticole*, Paris 1935, N° 24, p. 579 , 1936, N° 1, p 17.
6) NEVEN N., Moyens d'améliorer l'hydrogenèse des régions arides — *Revue scientifique*, Paris 1929, N° 3, p. 77 ; 1931, N° 24, p. 738.
7) STAMPA G., État actuel du rouissage microbiologique industriel des plantes textiles. — *Bulletin mensuel de renseignements techniques*, Rome 1931, N° 2, p. 64-74, illustr.
8) BIGEAULT Emile, *Le problème du chauffage et l'utilisation des rayons calorifiques obscurs*, Conférence faite à la Société Nationale d'Horticulture de France, Paris, le 14 mars 1935.
9) DUFRÉNOY J., Le chauffage et le forçage des plantes. — *Revue horticole*, Paris 1935, N° 15, p. 372.
10) TROCHON M. R., Les échanges par conduction et la température de la surface du sol — *La Météorologie*, Paris 1935, N° 120, p. 106.
11) COUTAGNE A., Le cycle annuel d'évolution des différents facteurs météorologiques du climat. — *Ibidem*, p. 133.

THE A. I. V. PROCESS IN THEORY AND PRACTICE

One of the central problems of modern dairy farming has been to attain, as far as possible, a self-dependent basis in the feeding of dairy stock, especially as regards the protein constituent of the ration. Increasing attention is therefore being paid to an extended cultivation of high-protein crops and their appropriate preservation for stable feeding. We all know that summer pastures yield excellent cattle food, particularly if they contain some clover It is possible to produce up to 30 kgs. of milk per cow per day on good pastures without the use of any extra feeds. On the other hand, it is known that with dried hay the daily milk production will not exceed 10 kgs. if no other feeds are used.

These differences are partly due to losses involved in the hay-making, which losses Wiegner (1) estimates to be about 40 per cent., and partly to the fact that the hay crop is always harvested at a very late stage, when its fibre content is high and the protein content low. For these reasons, hay must be supplemented in stable feeding with high-protein concentrates and with digestible carbohydrates in the form of roots or other similar feeds.

Another ancient method of storing grass crops for stable feeding is the preparation of ordinary silage. The success of this method depends on the formation of sufficient lactic acid in the ensilaged material to prevent a further decomposition of the forage. However, since the production of lactic acid necessarily takes a fairly long time, during which serious decomposition takes place especially in the protein constituents of the crop, the preparation of ordinary silage is invariably associated with heavy losses in nutritive value. In fact, these losses are of the same magnitude as those involved in hay-making, amounting to 30-40 per cent. of the nutritive value of the fresh crop. Besides, there are always formed in ordinary silage evil-smelling breakdown products which so easily give a disagreable taint to the milk and often make it quite unfit for consumption.

With low-protein crops with a high carbohydrate content (corn, sorghum, timothy) the preparation of ordinary silage may succeed without very serious losses and deterioration, whereas it fails more or less with high-protein crops, such as immature grass, clover, alfalfa and other leguminous species. The latter kind of material would, however, be the most valuable in practical dairy farming.

Various methods have been suggested to improve the quality of ordinary silage (cold fermentation with or without an addition of sugar, " electro-silage " method, etc.). Although some of these methods, Völz's method of adding sugar to the ensilaged material, undoubtedly improve the quality of the silage, they are not suited for the preservation of high-protein crops in practice, partly owing to the high expenses incurred and partly because successful preservation is never guaranteed.

Another possible approach to the problem of forage preservation was the addition of acid to the fresh product. Attempts to preserve forage by adding acid were made in Italy already in the 19th century, and later several German workers occupied themselves with this problem. For a more detailed survey of the earlier work the reader is refered to Steiner (2). All these experiments, however, failed, because they provided no practical method of ensuring successful preservation and a palatable and wholesome product. In view of later development, the failure of the earlier workers is easily understood. In their experiments the addition of acid was made at random, without sufficient knowledge of the nature of the fundamental biological processes which cause the decomposition and spoiling of the silage and of the degree of acidity, which must be attained to eliminate these processes

Our work on the preservation of fresh forage crops, which ultimately led to a definite solution of the problem, was begun in Valio's laboratory in the summer of 1925, and brought to a conclusion in 1928 when the new method (the so-called A. I. V.) method, was first employed on a practical scale on two farms in Finland. *The A. I. V., method is founded on the principle that the detrimental decomposition processes in the fodder, above all the respiration of the plant-cells, the breakdown of proteins, and harmful fermentations, such as those caused by Coli-bacteria and butyric acid bacilli, are prevented by an addition to the fodder, at the time of ensilaging, of the requisite amount of acid which will raise the acidity of the mass to a point between pH* 3 *and pH* 4. Our experiments had proved that at this degree of acidity there is still a surplus of bases in the fodder, and we were therefore justified in expecting that the fodder will be wholesome and that there is no danger of disturbances in the mineral metabolism of the animals. But if acid is added in such quantities that the pH of the fodder sinks below 3, the alkaline reserve is exhausted, and the fodder becomes unwholesome.

---

(1) The numbers in brackets refer to References, p. 393.

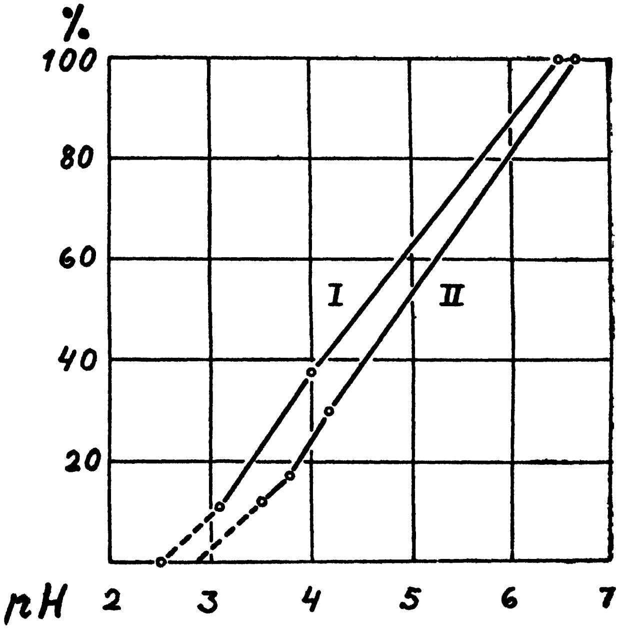


Fig. 1. — Results of experiments with green peas (curve I) and red clover (curve II) showing how the intensity of respiration depends on the hydrogen ion concentration

According to our investigations, the addition of acid, as involved in the A. I. V., method, produces the following effects:—

(1) *The respiration of the plant-cells*, i. e. the combustion of cell substances into carbon dioxide and water, involving especially the destruction of digestible carbohydrates and of proteins, *is rapidly suppressed* as the acidity rises. Fig. 1 shows the effect of the acidity on the respiration of the plant-cells.

The curves show that at about pH 3,5 the intensity of respiration is only from 10 to 20 per cent. of the corresponding value in fresh fodder. When the pH sinks to 3, respiration ceases completely.

(2) *Harmful fermentations*, especially those caused by Coli-aerogenes bacteria and butyric acid bacilli, *are completely prevented* in a fodder with pH

about 4. The growth of Coli-bacteria is inhibited as soon as the pH reaches the value of 4.7, and that of butyric acid bacilli at pH 4.2 (cf. Fig. 2).

No formation of butyric acid should thus be expected in A. I. V. fodder. As a matter of fact, numerous analyses show that butyric acid is never formed in A. I. V. fodder. Small amounts of acetic acid are produced in A. I. V. fodder, obviously as a result of pentose fermentation by the lactic acid bacteria. The formation of acetic acid from peroses is vigorously reduced owing to the suppression of the activity of Coli-bacteria.

In this connection, it should be particularly mentioned that lactic acid is always produced in A. I. V. fodder, because certain lactic acid bacteria are still active below pH 4 as shown by Fig. 3 (p. 375). The amount of lactic acid in A. I. V. fodder usually varies from 0.5 to 1.0 per cent. As lactic acid, when used in small quantities, has the same nutritive value as sugar, its formation does not lower the nutritive value of the silage and there is, consequently, no need for preventing lactic fermentation. The formation of lactic acid in A. I. V. fodder is, however, by no means essential to the preservation of the fodder.

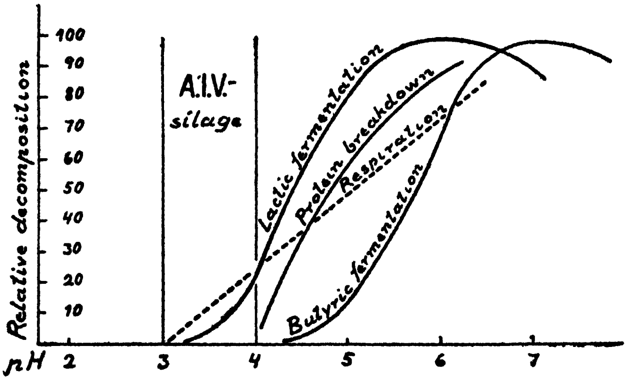


FIG. 2. — Influence of pH on the intensity of different biological processes in silage.

(3) *The breakdown of protein* whereby part of the protein is rendered valueless through the formation of ammonia, the biological value of the remaining part being greatly reduced due to the destruction of certain important amino acids, *is almost completely inhibited below pH* 4. The only noticeable change in the protein constituents of the material is the gradual increase of soluble nitrogen. However, this decomposition of proteins does not go so far as to form ammonia, but results only in the production of soluble organic nitrogenous compounds, whose nutritive value is practically equal to that of the original protein. It may be mentioned here that even this slight breakdown of protein is often completely arrested in the acidified fodder so that the composition of protein in the finished product is almost identical with that of the fresh crop (see Table 1).

The above findings concerning the effect of the hydrogen ion concentration on the detrimental breakdown processes in the ensilaged material have subsequently been fully confirmed by various workers. I refer here only to the investigations of SJÖBERG and KÖHLER (3) in Sweden. The various facts, which

TABLE I. — *Breakdown of protein in clover-aftermath during 4 months.*

	Fresh crop	Hydrochloric acid added			No acid added
		Initial pH = 3.7 Final pH = 3.6	Initial pH = 4.1 Final pH = 4.3	Initial pH = 4.5 Final pH = 4.6	Final pH = 4.5
Soluble nitrogen as % of total nitrogen.	26	28	44	60	65
Ammonia nitrogen as % of total nitrogen	1.5	2	12	21	22

form the theoretical basis of the A. I. V. process, are illustrated graphically by Fig. 3.

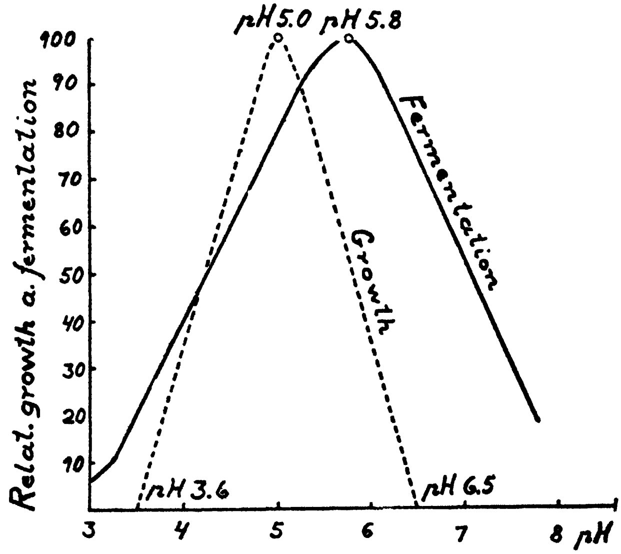


FIG. 3. — *Lactobacillus pentoaceticus*, growth and fermentation at different pH.

Our laboratory work had thus shown that the preservation of forage would succeed if only the acidity of the material could be adjusted to a point between pH 4 and 3, and maintained at this value during the period of storage. We therefore next proceeded to study the practical aspects of the problem. The first question to be solved was to ascertain the necessary quantities of different acids to be added to the fresh material in order to attain a degree of acidity below pH 4. For this purpose we tested various acids, both inorganic and organic, such as sulphuric acid, hydrochloric acid, phosphoric acid; lactic acid, etc., as well as various mixtures of these acids. It was soon found that, for economic reasons, only strong mineral acids (HCl, H_2SO_4) could be used in practice, and that the necessary amount of acid varied somewhat, depending on the raw-material to be ensilaged. Continued work on the subject led us to very interesting results. It was found that no free mineral acids remained in a silage that had been acidified (with hydrochloric or sulphuric acids) to pH 4-3. The strong mineral acids apparently react with the basic constituents of the crop, liberating the weaker organic acids and also protein bodies of acid nature, which then cause the acidity of the silage. Hence it follows that the amount of acid required to bring the pH of the mass to pH 3-4 is the greater the higher the content of the basic constituents in the fodder, so that, for instance, high-protein crops (legumes) require more acid than low-protein crops (grasses). Similarly it is natural that the amount of acid required depends also on the acidity of the soil in which the crop has grown. This is clearly seen from Fig. 4, previously published, e. g., in the *Schweizerische Landwirtschaftliche Monatshefte*, Heft 10, 1932.

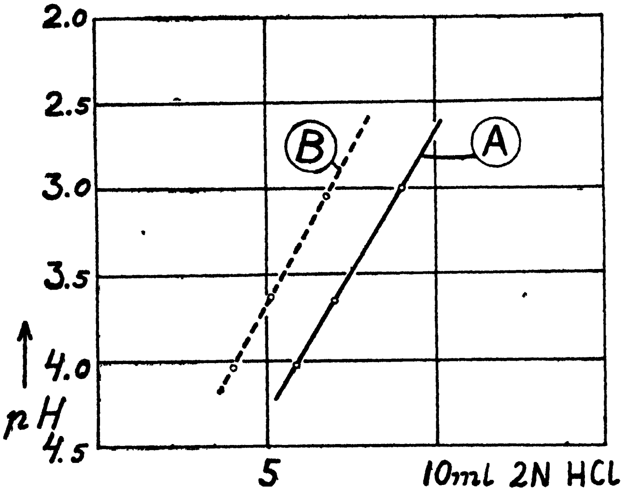


FIG. 4. — Acid requirements of red clover, influenced by the acidity of the soil where this plant grew.

100 grams of fresh material were treated with various quantities of 2 N hydrochloric acid.

A. - The acidity of the soil was pH. 6.5.

B. - The acidity of the soil was pH. 5 5.

It was mentioned that different plants require somewhat different quantities of acid. It is therefore necessary to determine the acid requirement separately for each different kind of crop. This can be done very simply by the following method.

About 2 kilograms of fresh fodder are first finely chaffed and three samples (200 grams each) are taken thereof. These samples are then treated in mortars with different quantities of 2 N hydrochloric acid — for instance, the first sample with 8 cc, the second with 14 cc and the third with 18 cc — and thoroughly mixed and ground, some water being added to enable the acid to penetrate the mass. The mixture is then transferred into suitable glass cylinders, weighed down with suitable weights and allowed to stand over night, whereafter the pH-value of the juice in different samples is determined either electrometrically or with the aid of suitable indicator papers. On the basis of the results obtained it is easy to calculate the proper amount of the acid to be used for each 200 kilos fodder, so as to lower the pH of the mass to a pH-value from 4 to 3.

Our experiments with sulphuric and hydrochloric acids further showed that sulphuric acid alone was not recommendable for practice, since the cows ate such silage with distinct unwillingness and not above 10-15 kgs per day. On the other hand, mixtures of the two acids have proved very successfull in practice. During the last years we have gradually raised the content of sulphuric acid in the mixture so that our farmers now employ an acid solution containing equivalent amounts of HCl and H_2 SO_4. This fact is of particular importance as it opens up possibilities for the use of sulphuryl chloride (SO_2 Cl_2) which, in the presence of water, undergoes hydrolysis into sulphuric and hydrochloric acids. Since sulphuryl chloride can be transported in metal vessels it will undoubtedly be the ideal preservative for future ensilage.

Another important practical question was the maintenance of the given pH value of pH 4-3 in the silage throughout the period of storing. If fresh grass in packed in a watertight container and acidified with mineral acids to say, pH 3.5, the acidity of the mass will gradually decrease so that, after a few months, the pH-value will have risen over the critical limit of pH 4. Once this occurs, the detrimental breakdown processes immediately set in and the material gets spoilt. Even if this is not very serious, cattle generally dislike, and often refuse, to eat silage which has been soaking in the liquid. In the course of our work we found a very simple way out of this difficulty. It appeared that the once-attained pH-value of the fodder mass remain unchanged over a period of several months, if the effluent is drained off, after a complete mixing of the acid with the forage, which usually requires about three days. Thus, in one experiment, the pH of the silage changed, during a storage period of one year, only from 3 65 to 3.48 (formation of lactic acid), while in the control silage, without drainage facilities, the pH rose from its initial value of 3.4 to 5 2. The gradual rise of the pH-value of the immersed silage offers an explanation for the complete failure of the FINGERLING-VOLBEHR's (14) "acid immersion method " in practice.

The question of the nutritive losses in the A. I. V. method has been the subject of much discussion. It is well known that accurate determination of the nutritive losses in large-scale trials is very difficult, owing to the wide range of the experimental error. The loss of crude protein can be determined with somewhat greater accuracy by collecting the drainage effluent and determining the amount of nitrogen which escapes that way. As nitrogen, according to our observations, does not escape in a gaseous form, the only losses of crude protein occur in the effluent.

The determination of the loss of dry matter is considerably more difficult. As I cannot here discuss in detail the methods employed for the estimation of these losses and the range of errors attending such determinations, it may suffice to give the figures that have been obtained for the losses in A. I. V. silage in large scale trials in practice. Table 2 shows the results of our experiments with clover and clover-timothy.

According to our determinations, the loss of dry matter in A. I. V. silage has varied from 3.5 per cent. to 8.3 per cent. when clover or clover-timothy were used as raw materials. The average loss was 6 per cent.

The loss of crude protein has varied from nil to 4.1 per cent, the average value being 1.9 per cent.

It appears from the table that the losses in A. I. V silage are largely dependent on the moisture-content of the forage at the time of ensilaging. If no effluent escapes, the loss of dry matter will be only 2-5 per cent. The amount of material escaping in the effluent is thus comparatively small. If the effluent

TABLE II. — *Determination of loss produced during silage.*
(The silos were opened after 3-8 months).

	Filled in			A I V solution used l	Amount of effluent l	Taken out			Loss of dry matter %	Loss of crude protein %
	D M %	Fresh crop kg	D M kg			D M %	Silage kg	D M kg		
A — The dry matter content of the fresh crop was so high that no effluent escaped										
1) Clover-aftermath	23.5–24	12250	—	857	0	—	12650	—	**3.5**	**0**
2) Clover-1st cut .	23.5–24	6715	-	470	0	-	6790	—	**5.5**	**0**
B — The dry matter content of the fresh crop was so low that more or less effluent was formed										
1) Clover-aftermath	17.4	11060	1919	746	2510	20.1	8870	1783	**7.1**	**4.1**
2) Clover-aftermath	21.6	10990	2376	781	1050	21.7	10432	2264	**4.7**	**1.2**
3) Clover-aftermath	19	6060	1151	470	807	20.6	5122	1055	**8.3**	**2.1**
4) Clover-aftermath	20.1	12880	2580	830	about 3000	23.0	10464	2407	**7.0**	**3.9**

amounts to 25 per cent of the total weight of the fodder, which is an exceptionally high figure in this country as far as clover or clover-timothy is concerned, the amount of dry matter escaping with the effluent is about 4 per cent. From crops with a high percentage of water, such as beet tops and marrow-stem kale, considerably more effluent escapes, and the loss rises accordingly.

In the experiments carried out by the Division of Animal Husbandry of the Agricultural Experimental Station of Finland, the average loss of organic matter in A. I V. silage was found to be 8.8 per cent and the loss of crude protein 6.2 per cent according to Prof POIJARVI (5) The latter figure is certainly too high, because protein losses occur only in the effluent and, according to our comparatively extensive material, the amount of effluent must be at least 30 per cent. of the weight of the fodder before the loss of crude protein amounts to 6 per cent. Such amounts of effluent are very rare in this country. On the whole, however, the losses reported by POIJÄRVI are of the same magnitude as our own figures. It may be mentioned that a trial made at the Agricultural Experimental Station, in the presence of our assistant, gave according to the report of POIJÄRVI, the following results: loss of organic matter 5.0 per cent., loss of crude protein 3.4 per cent. In a comparative trial arranged by our laboratory, in the presence of a representative of the Agricultural Experimental Station the conservation of a mixture of peas, vetches, and beans, with and without the addition of acid, gave the following results (Table III). The materials were preserved in similar silos and treated in exactly the same manner except that acid was employed in the AIV-silo.

Table. III. — *Comparison of results in ordinary silage and A. I. V. silage.*

	A. I. V. %	Ordinary silage %
Total loss of organic matter	7.0	22.6
Loss of organic matter in the effluent	2.6	1.8
Loss of crude protein	1.4	3.3
Ammonia nitrogen as °/₀ of total N	4.37	23.1
Free butyric acid	0	0.91
Free acetic acid	0.50	0.18
Alcohol	0.21	0.30

The estimated loss of feed units in the ordinary silage was 40-50 % per cent. The silage has a foul smell, and the cows ate it very reluctantly, and not over 20 kg. a day, whereas the A. I. V. silage was of excellent quality and was eaten readily and in large quantities by the animals. The silos were opened after a storage period of 19 weeks.

The nutritive losses in various methods of grass conservation have been exhaustively investigated by the late Prof. G. Wiegner and his school (1, 2). They likewise report very favourably on the A. I. V. process. In their trials, the average loss of starch units in hay-making was 40 per cent. (the minimum loss figure, obtained under ideal weather conditions, was 33 per cent.). In the preparation of ordinary silage the nutritive losses likewise averaged 40 per cent., whereas in A. I. V. silage the loss of starch units was only 5 per cent, varying from 3 to 8 per cent. The digestibility of the A. I. V. silage was practically equal to that of the fresh crop from which it was made.

In Norway the A. I. V. method has been subjected to a very careful trial by Dr. L. S. Spildo. According to his report before the IIIrd Grassland-Conference of the North and Central European Countries in Switzerland in 1934 (6), the loss in dry matter amounted to 4-8 per cent. and the loss in organic matter to about 3 per cent. of the total. In a later paper (7) Spildo reports that the losses of dry matter in the A. I. V. silage are practically limited to what is lost in the drainage effluent.

The excellent quality of A. I. V. silage is strikingly illustrated by the work of Edin *et al.* (8) in Sweden. They obtained from clover aftermath a silage with the following properties: feed value = 102 feed units per 100 kgs. organic matter, digestibility of organic matter = 76, protein value = 172 g. per one feed unit. Since the fresh crop could hardly have shown higher values it is evident that the nutritive losses were quite insignificant.

The nutritive losses in A. I. V. silage have also been investigated by the State Agricultural Experimental Station at Hoorn, Holland. The losses of organic matter in three experimental silos varied from 7.7 to 9.3 per cent., the average value being 8.7 per cent. (9). It may still be added that in British trials, carried out by the Imperial Chemical Industries Ltd., the average loss in the A. I. V. silage was about 10 per cent. (private communication).

In general we may thus conclude that the loss of dry matter in the A. I. V. silage is less than 10 per cent. The loss brought about by the actual decomposition processes varies, according to our determinations, from 2 to 5 per cent. The extent of additional losses depends on the amount of effluent formed.

The value of a method of preserving fodder is, however, by no means solely dependent on the magnitude of the material losses. Above all, it depends on the nature of the changes in the fodder, the palatability of the product, its effect on the health of the animals and on the quality of the milk, and, finally, on the economy of the procedure. In regard to these questions, our 7 years' experience justifies the following conclusions:

I have already mentioned that an artificial acidifiying of the fodder to a point below pH 4 prevents the respiration of the fodder mass as well as all harmful fermentation processes and the breakdown of protein. This being the case, it is evident that the composition of the main constituents of the fodder: carbohydrates and proteins, does not undergo appreciable changes in A. I. V.-silage. This is a very important fact, especially as regards the proteins. If 10-30 per cent. of ammonia is split off from the protein, as is the case with ordinary silage, it represents a considerably greater loss than that indicated by these figures, because the cleavage of ammonia from the different amino acids is not proportional to the amounts of the different amino acids present in the proteins of the fodder; actually, certain biologically important amino–acids are destroyed to a much greater extent than others. Thus, we have shown that, for instance, tryptophane is generally destroyed in ordinary silage, while it is well preserved in the A. I. V.-silage. The true nutritive value of the protein contained in ordinary silage is therefore lowered considerably more than what might be inferred from the amount of ammonia formed. Since only insignificant amounts of ammonia are produced in A. I. V.-silage, all the amino acids are retained practically unaltered in this fodder. The quality and the nutritive value of the protein in A. I. V.-silage are therefore practically the same as in the raw-material.

Owing to the fact that no appreciable decomposition processes occur in A. I. V.-silage, its digestibility remains approximately the same as that of the raw material. The losses of feed units are therefore practically limited to the above-mentioned losses of dry matter.

In addition to the actual nutritive substances, certain important catalysts are also remarkably well preserved in A. I. V.-silage, above all the vitamins which are indispensable for the proper utilization of the food and for the health of the animals. From these catalysts, carotene is one of the most important, as it acts as vitamin *A* in the animal organism. Being highly susceptible to oxidation, carotene is gradually destroyed in hay, as shown by the following determinations made by us.

The yellow colour of summer butter is due to its carotene content which, consequently, fades away gradually in the course of the winter if the cows are fed on hay. In early spring, the colour of the butter is very pale. In ordinary silage the carotene content likewise falls considerably, due to the respiration of the plant-cells and the fermentation processes in the fodder mass. Ordinary

TABLE IV. — *Carotene in mgs. per 10 g. of dry matter.*

	Fresh crop	After 5 months	After 7 months	After 11 months
Hay	0.75	0.31	0.14	0.07
A. I. V.	0.75	0.85	not determ.	about 1.0

silage is, therefore, also unable to keep the vitamin *A* effect of the butter at its summer level. In A. I. V. silage on the other hand, the entire amount of carotene is retained, as shown by experiments both in this country and in England (14) and U. S. A. (15). Therefore, the vitamin *A* effect of butter produced with A. I. V.-silage is, in fact, equal to that of the best summer butter. The vitamin *A* effect of butter produced with hay, roots, and concentrates is only about 1/3 of that of butter produced with A. I. V.-silage or fresh pasture grass

The high content of carotene and also of other vitamins in A. I. V.-silage explains the particularly favourable effect of this silage on the growth of calves and heifers. The powerful effect of A. I. V.-silage on the growth of animals is perhaps best illustrated by the following feeding trial, which was carried out at Store Wildmore, Denmark (*).

In summer 1932, A. I. V.-silage and hay were made from the same crop. A feeding trial with the different feeds was carried out using 48 heifers, divided into three groups of 16 animals each. The ration in Group I consisted mainly of hay, that in Group II of A. I. V.-silage, while Group III received a combined ration of hay and A. I. V. Equal amounts of dry matter were fed to each group. In the spring of 1933 all animals were weighed. The results were:

TABLE V. — *Results of a feeding experiment with hay and A. I. V. silage.*

	Group I	Group II	Group III
Daily ration	8 kg. of hay	30 kg. of A. I. V.	4 kg. of hay 15 kg. of A. I. V.
Average increase of weight during the stable-feeding 1932-1933	37 kg.	60 kg.	61 kg.

The effect of A. I. V.-silage on the health of animals has been a matter of much discussion, especially during the first years. Gradually, however, every doubt on this point has been dispelled by the evidence of an extensive experience. It has appeared that the health of the animals on farms, where A. I. V.-silage was used freely during these 7 years, has invariably been excellent, and no symptoms indicating any harmful effects of A. I. V.-silage have been noted.

(*) Quoted from a communication of Mr. OLSEN, who was in charge of the experiment.

Dr. HUNGERFORD, U. S. A. (10), mentions that the inclusion of A. I. V.-silage in the ration of a dairy stock resulted in an almost complete disppearance of cases of calf pneumonia, which had previously been a dreaded scourge on the farm. Comparative feeding trials carried out in England show that the feeding of A. I. V.-silage to fattening cattle brings about a greater increase of weight than could be expected merely from its nutrient content (11). It has also been shown that A. I. V.-silage is excellent food for other animals besides dairy cattle: pigs, poultry (12) rabbits, etc.

The palatability of A. I. V.-fodder is good. This fact is so well known from practical experience that it is not necessary to discuss it here in detail. I will only mention that a cow with a live-weight of 450 kg. consumes willingly at least 40 kg. of A. I. V.-fodder, i. e. about 6-7 feed units.

The milk produced with A. I. V.-silage is excellent for consumption, on account of its agreeable taste and its high vitamin content. It becomes increasingly clear that the A. I. V.-milk contains, besides the known vitamins, also other important substances, which are necessary for the normal function of the animal organism. Thus, VON WENDT reports that the inclusion of A. I. V.-milk in the diet of nursing mothers effects a distinct increase in her milk secretion. The factor responsible for this favourable effect seems to be water-soluble and is, therefore, also contained in the whey of A. I. V.-milk. PETERSON *et al.* (13) have shown that the A. I. V.-milk promotes the growth of rats far more than does ordinary winter-milk. During an experimental period of 6 weeks, the increase in weight in the A. I. V.-group was 94 g (initial weight 50 g) and in the control group 52 g. However, since even the control animals received 17 rat units of carotene in their daily winter-milk ration, the American authors conclude the marked superiority of the A. I. V.-milk must be attributable, not to its high carotene content, but to some unknown catalyst contained in the A I. V.-milk and absent from ordinary winter-milk.

According to a private communication by Prof. HART, Madison, U. S A., fresh pasture grass contains some water-soluble factor which promotes the growth of rats and is lacking from hay. Ordinary winter milk, produced on a ration of hay, has therefore much smaller growth-effect than pasture milk. However, a distinct effect on growth is noted when some juice is pressed from fresh grass and added to ordinary winter milk. Now, it is important to note that, according to Prof. HART, the factor responsible is contained in A. I. V.-silage and consequently also in A. I. V.-milk. It is possible that the factor in question is vitamin B_4.

A. I. V.-milk, produced under carefully controlled conditions, is already on the market in Finland and U. S. A.

The quality of butter is distinctly improved by A. I. V.-feeding; it retains its soft consistency even in winter, as the oleic-acid content of the butter-fat maintains its summer level. The hardness and brittleness of winter butter, produced by hay-feeding, is thus avoided. Winter butter also acquires the golden colour of summer butter, owing to its high content of carotene.

In the manufacture of certain grades of cheese, A. I. V.-feeding has been found to cause disturbances, due to soil particles, containing butyric-acid bacilli, getting into the fodder and protecting the spores of the micro-organisms from the influence of acid. It is not advisable, therefore, to use A. I. V.-milk in making Emmenthaler (Gruyère) cheese, as this cheese is extremely susceptible to butyric-acid bacilli. On the other hand, our experiments and practical experience in Finland have shown that cheeses such as Dutch Edam can be successfully prepared from A. I. V.-milk.

The practical value of an ensilage method naturally depends on the economy of the process, i. e. its profitableness. This in turn is decisively dependent, not only on the nutritive losses and the quality of the product, but also on the expenses incurred. The following example will give an approximate idea of the advantages of the A. I. V.-process over hay-making and the ordinary fermentation methods.

The data presented in this calculation are based on the results of carefully controlled trials in Denmark and Finland, regarding the losses incurred in different methods of conservation. The annual yield of clover per hectare has been estimated to 25,000 kgs fresh weight a very moderate estimate.

TABLE VI. — *Clover-crops preserved by different methods.*

1st crop: 15 000 kg. of fresh fodder (3.000 kg of dry matter),
2nd crop: 10.000 kg. of fresh fodder (1 800 kg. of dry matter).

I.	II
1st crop made into hay	1st crop made into hay
2nd crop made into ordinary silage	2nd crop made into A I. V.-fodder
1st crop 1588 f. u., 206 kg dig prot	1st crop 1588 f. u., 206 kg dig. prot
2nd crop 874 f. u., 109 kg. dig prot	2nd crop 1151 f. u., 176 kg. dig prot.
Total 2462 f. u, 315 kg dig prot	*Tatal* ... 2736 f u., 382 kg dig prot
III	**IV.**
1st crop made into ordinary silage	1st crop made into A I. V-fodder
2nd crop made ordinary silage	2nd crop into A I V-fodder
1st crop 1362 f. u., 168 kg. dig prot.	1st crop 2261 f. u, 280 kg. dig. prot.
2nd crop 874 f. u., 109 kg dig. prot	2nd crop 1151 f. u, 176 kg. dig. prot.
Total .. 2238 f. u., 277 kg. dig. prot.	*Total* ... 3412 f. u., 456 kg. dig prot.

The superiority of the A. I. V.-process over the earlier methods of grass conservation is clearly seen from the above calculation. A farmer who makes his first cut into hay and the second into ordinary silage (alternative I) obtains a total of 2462 feed units and 315 kgs. of digestible protein per hectare, whereas an A. I. V.-farmer, who preserves both crops in the form of A. I. V.-silage (alternative IV), obtains from the same field area a grand total of 3412 feed units and 546 kgs. digestible protein, i. e. about 40 per cent. more.

During recent years, the Central Union of Agricultural Societies in Finland has collected extensive material in regard to the economical aspects of the different methods of forage preservation. This material has been treated by Mr. I. AIKKINEN who has recently brought his work to conclusion. The main result is best illustrated by the following table, showing the average values from 23 field trials on a total area of 50 hectares. In the procedure A, the first crop was harvested earlier than in B. Both cuts were made into A. I. V.-silage, while in the procedure B, the main crop was cured as hay and the aftermath was made into A. I. V.-

TABLE VII. — *Advantages of A. I. V. process over other processes.*

Procedure	Yields		Concentration kg. per F. U.	Dig. protein g. per F. U.	Cost of one F. U. Finn. marks.
	Feed units per hect.	Dig. protein kg. per hect.			
A	3 344	462	1.46	138	0.85
B	2 739	324	1.94	118	1.13
Difference	605 = 22 %	138 = 43 %	—	—	0.28 = 25 %

silage. The concentration of the feeds is expressed in kgs. of the dry matter required to make one feed unit.

It will be seen that, when the 1st cut from clover-grass fields was made into hay and the aftermath into A. I. V. (alternative B), a total of 2739 feed units, containing 324 kgs. digestible protein, was obtained per hectare. In parallel experiments on the same fields, 3344 feed units and 462 kgs. digestible protein were obtained by making both cuts into A. I. V. Now, it must be observed that in the B-case the concentration of the feeds, as well as the content of digestible protein per each feed unit, was much lower than in A. If allowance be made for the quantities of soybean and oat-meal required to compensate the feeds obtained by the B-procedure, *i. e.* to raise their concentration and dig. protein content to the level of the A-feeds, it can be calculated that the cost of one feed unit in the A-procedure was 0.85 *Finn. marks.* and in B, 1.13 *Finn. marks.* The difference was thus 25 per cent. The difference would have been still higher, had in the B-case the aftermath been made into fermentation silage instead of into A. I. V.

It is evident from the above that the A. I. V.-process is indeed a most valuable means of improving the standard of dairy farming, as it produces a silage of excellent quality with a minimum cost. Since the quality of the product is closely similar to that of the raw material, it is clear that the fresh crop should be harvested at a stage when its nutritive properties are highest. This is the case

TABLE VIII. — *Feeding value and protein content of A. I. V.-silage.*

Raw-material	According to HANSSON			According to VIRTANEN		
	A. I. V.-silage kg/ f. u.	Dry matter kg/ f. u.	Dig. protein g/ f. u.	A. I. V.-silage kg/ f. u.	Dry matter kg/ f. u.	Dig. protein g/ f. u.
Clover, budding stage	6.3	1.26	170	6.0	1.38	150
» , start of blooming	6.4	1.40	147	—	—	—
Pasture grass	6.0	1.32	132	5.5	1.27	120
Grass, 50 % clover	6.1	1.40	128	6.5	1.43	120
» , 20 % »	6.4	1.57	109	—	—	—
Timothy, immature	6.5	1.56	78	6.5	1.43	70
Aftermath, 80 % clover	6.5	1.30	156	6.0	1.38	140
Peas and vetches	—	—	—	7.0	1.44	170

Table IX. — *Feeding-chart for cows weighing about 450-500 kgs. The A. I. V. fodder was prepared from young clover. 6 kgs. of the fodder make one feed unit. and contains 140 g. of digestible protein.*

	A. I. V.-silage	Hay	Straw	Oat-meal	Oat-meal total
Milk yield 0-3 kg.: Kilogrammes	12	1.5	6	— —	—
» » » Feeding unities	2.0	0.6	1.3	4.1 —	—
» » » Digest. protein (g.)	280	45	60	385 —	—
» » » Dry matter (kg.)	2.8	1.3	5.1	9.2 —	—
Milk yield 3-6 kg.: Kilogrammes	18	1.5	6	— —	—
» » » Feeding unities	3.0	0.6	1.5	5.1 —	—
» » » Digest. protein (g.)	420	45	60	525 —	—
» » » Dry matter (kg.)	4.1	1.3	5.1	10.5 —	—
Milk yield 6-9 kg.: Kilogrammes	30	1.5	4	— —	—
» » » Feeding unities	5.0	0.6	1.0	6.6 —	—
» » » Digest. protein (g.)	700	45	40	785 —	—
» » » Dry matter (kg)	6.9	1.3	3.4	11.6 —	—
Milk yield 9-12 kg.: Kilogrammes	36	1.5	4	— —	—
» » › Feeding unities	6.0	0.6	1.0	7.6 —	—
» » » Digest. protein (g.)	840	45	40	925 —	—
» » » Dry matter (kg)	8.3	1.3	3.4	13.0 —	—
Milk yield 12-15 kg.: Kilogrammes	42	2.5	2	— —	—
» » » Feeding unities	7	1	0.5	8.5 —	—
» » » Digest. protein (g.)	980	75	20	1075 —	—
» » » Dry matter (kg.)	9.7	2.1	1.7	13.5 —	—
Milk yield 15-18 kg.: Kilogrammes	45	1.5	1	— 2	—
» » » Feeding unities	7.5	0.6	0.2	8.3 1.7	10.0
» » » Digest. protein (g.)	1050	45	10	1105 154	1259
» » » Dry matter (kg.)	10.4	1.3	0.9	12.6 1.7	14.3
Milk yield 18-21 kg.: Kilogrammes	45	1.5	—	— 35	—
» » » Feeding unities	7.5	0.6	—	8.1 2.9	11.0
» » » Digest. protein (g.)	1050	45	—	1095 270	1365
» » » Dry matter (kg.)	10.4	1.3	—	11.7 3.0	14.7

just before blooming, when the plants contain a maximum of protein, digestible carbohydrates and vitamins. A further important fact is that at this stage the composition of the protein is nutritionally more valuable than in a more mature crop. Thus, for instance, the content of the important amino acid tryptophane decreases fairly rapidly after blooming.

The feeding value of the A. I. V.-silage is best illustrated by the Table VIII, showing the results of determinations carried out by HANSSON in Sweden and by myself.

Table IX, will show how the feeding of the dairy stock is arranged on farms where the A. I. V.-silage is the main constituent of the ration.

It is clearly seen that an entirely satisfactory milk production can be attained without the use of purchased concentrates (oilcake etc.), and even without the use of oat-meal.

At present, the A. I. V.-silage constitutes about 10 per cent. of the total feeds of Finnish dairy cattle, owned by members of our Dairy Control Associations, and about 14 per cent. of the total winter feeds. On numerous farms A. I. V.-silage is used in the stable feeding to the extent of from 30 to 70 per cent. The practical experience gained on such farms is the best proof of the favourable effect of the A. I. V.-process on the economy of milk production. In order to illustrate this effect, the following data are given, showing the results obtained in practice on two farms in Finland.

TABLE X. — *Feeding of dairy stock on the Pekkala Farm.*

	1927-28	1928-29	1929-30	1930-31	1931-32
Pekkala Farm :					
Oilcake %	20.3	—	11.2	5.7	0
Other concentrates %	16.2	—	14.3	15.3	14.8
Hay %	26.1	—	22.0	22.7	13.5
Straw %	10.8	—	13.4	8.1	11.6
Roots %	4.6	—	8.3	5.1	3.0
Other fresh fodder %	5.5	—	4.6	5.8	7.1 (marrow stem kale)
A. I. V. – fodder %	0	—	4.3	14.0	27.7
Pasture %	16.5	—	20.9	23.3	22.3
Oilcake per cow during 12 months, kgs.	495.0	450.0	257.0	160.0	0
Production :					
Number of cows	70.6	—	65.2	60.4	66.7
Milk per cow during 12 months, kgs.	3389.0	3500.0	3419.0	3718.0	3398.0
Butter-fat kgs.	129.4	—	140.0	148.7	133.8
Butter-fat %	3.82	—	4.09	4.0	3.94

The chief features of the A. I. V.-process and the advantages obtained from its application in practice may be summed up briefly as follows:

(1) All kind of fresh fodder (even crops rich in protein such as alfalfa, clover etc.) can be successfully preserved, with an average loss of only 5-10 per cent.

TABLE XI. — *Joensuu Farm. Feeding of the dairy stock during 1933-34.*

	% of total feeds	% of stable feeds
Oat-meal	8.5	13.9
Hay	7.0	11.4
Potatoes	5.2	8.5
Straw	2.7	4.4
A. I. V. - silage	37.8	61.8
Pasture	38 8	—

Total: 2700 feed units per cow per year.
Average production values: 3,983.7 kgs. milk, 162.1 kgs. fat
Maximum: 5,240.6 kgs milk, 226.2 kgs fat

(2) The resulting product is a most wholesome and palatable fodder, which can be fed to the cattle in very large quantities (up to 60 kg per head per day).

(3) The feeding of cattle becomes very simple as the chief constituent of the ration contains sufficient protein.

(4) The use of purchased concentrates can be considerably reduced or made superfluous.

(5) A high milk-production can be attained with the use of home-produced fodder.

(6) The vitamin-content of milk and milk-products is maintained high throughout the winter.

(7) The cost of milk-production is reduced.

(8) The A.I.V.-fodder gives no strange smell or taste to milk, and improves considerably the quality of butter.

(9) Grass can be cut at an early stage, when its nutritive value is at its highest. No chaffing of the fodder is necessary.

(10) The marking of A. I. V.-fodder is wholly independent of weather conditions, succeeding perfectly even on rainy days.

(11) The making of A. I. V.-fodder is very inexpensive, the costs per feed unit being approximately equal to the costs of hay-making per feed unit.

(12) The practical operations involved are very simple and the success of preservation is guaranteed whenever the work is properly done.

Since all kinds of crops can be successfully preserved, the A. I. V.-process opens up new possibilities for improving the present farming practice. In this respect the cultivation of legumes and the use of associated growth of legumes and non-legumes is the most important item.

PRACTICAL WORK.

Silos. — A. I. V.-silage may be preserved either in low-built pit silos (fig. 5) or in tower silos. The silos must necessarily be circular, since in rectangular or polygonal silos the exclusion of air is not complete, and causes the silage to moulder.

In choosing the site of the silo the following facts should be considered: (1) height of water table; (2) facilities for drainage, and (3) convenience in filling.

(1) The accumulation of water in the silo must be prevented since cattle dislike silage which has been steeped in water. The silo must therefore be built so that the effluent and ground-water can be conveniently drained off. Where the water table will permit, the most convenient depth to sink the silo is 2-3 metres. Where the water table is high the silo is sunk less deep. Tower silos are naturally built above ground.

(2) The bottom of the pit should be made with a slight fall to the centre. A sump-hole 30 cm square and about 30 cm deep is made into the centre of the silo and filled with stones or gravel. A tile drain is led from the sump-hole to an open channel or ditch (not to a land drain, since this may become furred up with mouldgrowth) No drain is required where the soil is porous Tower silos must likewise be provided with a drain

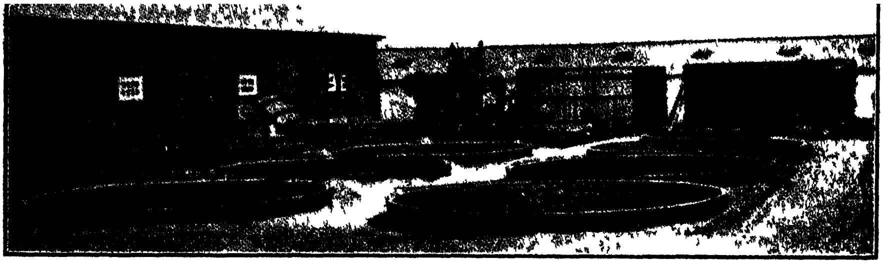


FIG 5 — Low built pit silos

(3) For convenient filling the silos, particularly the larger ones, are preferably built beside a gangway leading to the loft of barns or similar farm buildings.

The size of the silo depends on the quantity of crop to be preserved and also on the size of the dairy stock. With small herds (less than 15 cows) the diameter of the silo should be 3-4 metres, while with larger herds 5 or 6-meter silos are recommendable The height of the pit silos varies from 2 to 3 metres, and that of tower silos from 5 to 6 metres The silos are made of concrete The concrete must be coated with some acid-proof material (clay or various laquers) to protect it against the acid solution. Where the ground permits, even unlined pits may be successfully employed

The upper-silo (fig. 7-9) — In order that the material may be tightly pressed in the silo and that the silo space is effectively utilised, a special movable upper-silo is employed for pit silos This is circular in shape, height 2 metres and with a diameter slightly greater than that of the under-silo, so that it will fit exactly around the top of the latter. The upper-silo is first built ready and then cut into sections of suitable size. It is fitted on top of the undersilo as soon as the latter is filled.

Crops. — The material to be ensilaged must be young and succulent so that it presses down into a compact mass, expelling air. All kinds of succulent crops may be successfully conserved. Mature crops-flowering grass, etc. must not be made into A. I. V. The best raw-materials are immature clover, herbage grass

FIG. 6. — Filling of a silo by means of a winch on a trestle. The acid tank stands on a platform above the winch.

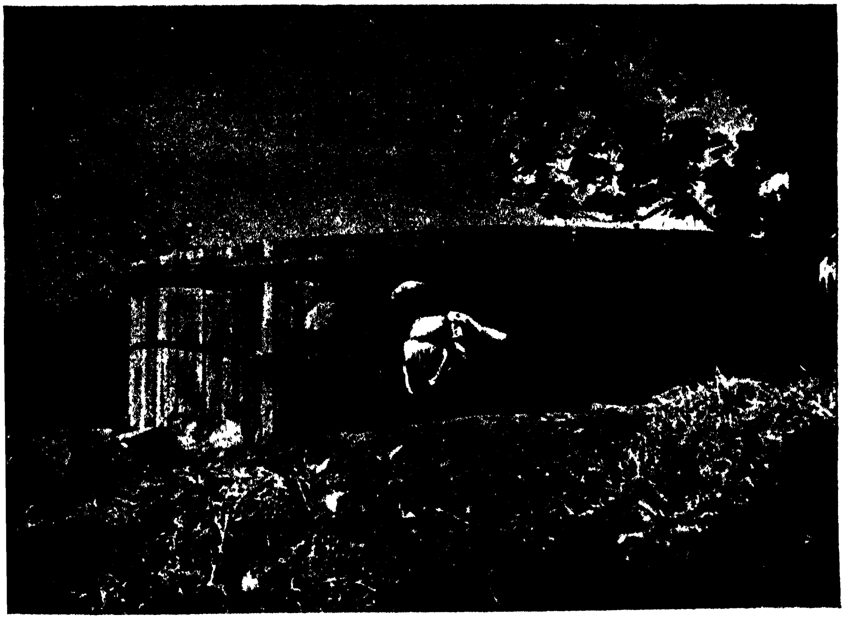


FIG. 7. — Placing of an upper-silo of wood on a full pit silo.

and silage mixtures of legumes and grasses, all cut before the flowering stage. The crop should be ensilaged immediately after cutting, and certainly on the day of cutting; otherwise it becomes partially dry and will not settle satisfactorily in the silo.

The A. I. V.-solution. — The A. I. V.-solution is a concentrated mixture of hydrochloric and sulphuric acids. The solution is transported in largish glass carboys, and must be diluted before use. The degree of dilution depends on the strength of the concentrated solution. After dilution, the solution should have

FIG. 8 — Filling an upper-silo of wood.

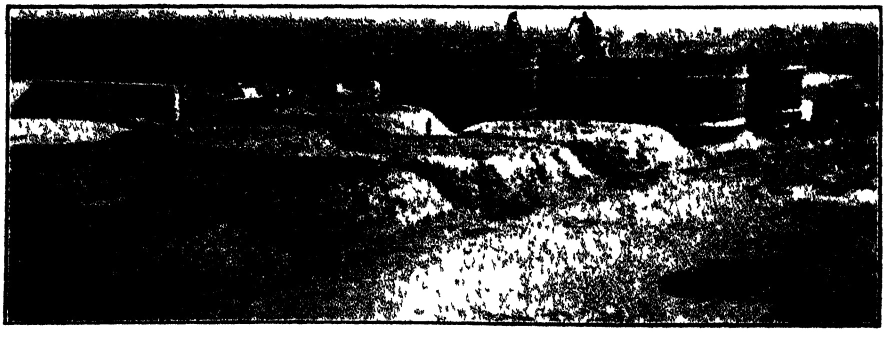


FIG. 9 — The forage, covered with earth, sinks into the under silo in 3 or 4 days. The upper-silo is then removed.

A. I. V. silos after complete sealing.

N. B. — A. I. V. process makes it possible to preserve forage crops, without chaffing, in simple and inexpensive silos. Round concrete pit silos are very much in use in Finland. Wooden and concrete tower silos with a height of 4-5 m. are also frequently employed. In the process of filling it is advisable to use a winch provided with a simple scale. The photographs illustrate the form and filling of concrete pit silos.

the strength of twice normal acid. The dilution is carried out in large wooden barrels. The necessary quantity of water is first measured into the barrel whereupon the appropriate amount of the strong acid solution is added, and the mixture throughly stirred with a pole. The dilute solution is evenly sprayed on layers of the fodder from a rubber watering-can or preferably from a hose. In the latter, case the acid tank is placed on a trestle beside the pit. With tower silos a brass semi-rotatory pump may be employed in case the acid solution cannot be run directly from the tank. The pump is provided with a hose which is fitted with a brass or rubber rose.

Filling (fig. 6-9). — The fresh crop is filled in the silo in layers of about 10 cm (about 75 kgs. in 3-m. silos, 200 kgs. in 5-metre silos, etc.). The approximate weight of the fresh material must be known. The crop is most easily weighed, for instance, by ascertaining the weight of 10 or 20 forkfulls. The man forking off the load should then endeavour to fork the same amount of material each time. Another procedure is to weigh the first two or three loads and to make up the following loads to about the same size. The weights of the loads, or forkfulls, should be checked from time to time. Special hoisting apparatus, fitted with a simple scale for weighing the crop, will save a fair amount of work. The material is distributed into the silo as evenly as possible. The man working in the silo must wear rubber boots and preferably wadmol trousers.

Spraying. — The dilute acid solution is sprayed on the fresh crop in the following quantities:

For each	200 kgs.	clover	14	litres of the dilute (2N) solution
» »	200 »	clover-timothy	13	» » » » »
» »	200 »	timothy	12	» » » » »
» »	200 »	silage mixture	14	» » » » »
» »	200 »	potato halms	12	» » » » »
» »	200 »	marrow-stem kale and tops . .	8	» » » » »
» »	200 »	horse-tail or sedge	10	» » » » »
» »	200 »	hair-grass	10	» » » » »

The above quantities are used on cloudy or rainy days and in the mornings. On very warm days when the dry matter content of the crop tends to rise, one or two litres more acid are used per each 200 kgs. of material. The acid solution must be sprayed as evenly as possible over the whole surface of the fodder. The quantities mentioned above are employed by farmers in Finland. In countries, where the reaction of the soil is neutral or possibly even alkaline, larger quantities of acid must naturally be used. It is therefore necessary in each country to determine the acid requirements of various crops beforehand by laboratory experiments.

It is absolutely essential that sufficient acid is used in the filling. A slight excess of acid does no harm whereas too little of it may spoil the whole crop. The above rules must therefore be strictly adhered to.

Topping. — As soon as the under-silo is filled the upper-silo is fitted on top of it and filling continued until the upper-silo is full. The top of the fodder should then be dome-shaped in appearance. The uppermost layer is sprayed with a double quantity of acid, particularly round the circumference, and the top of the mass is covered with sacks or paper. Tops and leaves of marrow stem kale are excellent covering material. Earth to the depth of 50 cm is finally placed on top of the fodder to press it down into the under-silo. In tower silos the fodder is covered with a wooden cover which is weighed down with suitable weights.

Sealing. — When the fodder has sunk down into the under-silo, the upper-silo is removed and may be used for other silos. The settling of the fodder generally takes about 3-5 days. The edges of any fodder in view are bevelled off and the whole sealed with earth to prevent mould due to access of air. The finished surface must be dome-shaped so that rain will run off.

Feeding. — When the silo is being emptied the silage must be removed layer by layer. Vertical cuts must not be made as the surfaces so formed are liable to mould. No more fodder should be removed at a time than can be fed in 1-2 days. When once a silo has been opened it should be used from day to day until all the fodder is consumed.

When feeding cattle extensively on A I. V.-silage it is well to include in the ration some limestone to neutralise the acidity of the silage. A mixture, consisting of 70 per cent. of limestone meal and 30 per cent. of dehydrated soda, has proved very suitable. 40 grams of this mixture are fed per each 10 kgs. of A. I. V.-silage.

ARTTURI I. VIRTANEN.

(Laboratory of the Co-operative Butter Export Association, Valio, Helsinki, Finland)

REFERENCES

The development and main aspects of the A I V -process have been described by VIRTANEN *et al.* in the following papers

Virtanen

A new method of preserving fresh forage (Finnish) — *Contributions from Valio's Laboratory*, 1929.

The A. I. V.-silage (Finnish). — *Ibid*, 1930.

Effect of the A. I. V.-silage on the mineral metabolism of the animal organism (Finnish) — *Ibid*, 1930.

Die A. I. V. - Methode zur Konservierung von frischem Futter. — *Schweiz. Landw. Monatsh.*, Heft 10, 1932.

The A. I. V., method of preserving fresh fodder — *Empire Journ. Exp. Agric.* I, 143, 1933.

The A. I. V., method for the preservation of fresh fodder (English). — *Acta Chem. Fenn.* A. VI, 1933.

Ensiling of potato-tops (English). — *Contributions from Valio's Laboratory*, 1934.

5 years' experience of A. I. V.-fodder (English). — *Ibid*, No. 2, 1934.

Effect of A. I. V.-silage on the growth of young rabbits (English). — *Ibid*, No. 2, 1935.

Outlines of a self-dependent nitrogen economy in agriculture (Swedish). — *Kungl. Landtbr. akad. Handl.*, 1935.

The Chemistry of Grass Crops. — *J. Soc. Chem. Ind.*, Vol. 54, 1935.

Vitaminreiche Wintermilch. — *Zeitschr. f. Volksernährung*, Hzft 24, 1935.

Die Anordnung einer wirtschaftseigenen Milchproduktion in Finnland. — *Milchwirtsch. Zentrbl.*, No. 4, 1936.

Aikkinen·

Comparative feeding trial with clover aftermath, preserved according to the A. I. V.-process and by an addition of salt and sour milk (Finnish). — *Contrib. from. Valio's Laboratory* No. 1, 1935.

The profitableness of the A. I. V.-process in the curing of clover-grass crops (Finnish); *Karjantuote* No. 8, 1936.

Other references:

(1) WIEGNER, *Report of the IIIrd Grassland-Conference*, Zurich, 1934.
(2) SENER *Landw. Vers-Sta.* 1924, 1935.
(3) SJOBERG and G. KOHLER, *Medd. No.* 408, *Centr. anst. forsoksväs. iordbr.*, Stockholm 1932.
(4) VOLBEHR, *Landw. Vers.-Sta.* 108 1929.
(5) POIARVI *Valtation Mastalouskoetoiminnan Julkaisuia No.* 63 m *Helsinki*, 1934.
(6) SPILDO, *Report of the IIIrd Grassland-Conference*, Zurich, 1934.
(7) SPILDO, *Landbruksdirektorens arsberetning* 1934, tillegg K, Oslo, 1936.
(8) EDIN et al., *Medd. No.* 461, *Cntr. anst. forsoksäs. iordbr.*, Stockholm, 1936.
(9) Landbouwvoorlichtingsdienst Mededeeling No. 2, Wageningen 1934.
(10) UNGERFORD, *Certified Milk*, New York, 1935.
(11) PATTERSON, *Emp. J. Exp. Agric.*, III, 10, 1935.
(12) TSCHERNIAK, *Archiv f. Geflugelkunde* 9, 8-9, 1935
(13) PETERSON et al., *J. Dairy Sci.* Vol, 18, No. 1, 1935
(14) WATSON et al., *Biochem. J.* 27, 1934.
(15) BEESON, *Meeting of the American Dairy Science Assoc.*, June, 1934

MEDICINAL AND AROMATIC PLANTS

RESOLUTIONS ADOPTED BY THE INTERNATIONAL FEDERATION FOR THE DEVELOPMENT, UTILISATION AND COMMERCE OF MEDICINAL, AROMATIC AND SIMILAR PLANTS, DURING THE SESSION AT MUNICH, SEPTEMBER, 1936.

The Resolutions were communicated to the various countries, on 30 September, 1936, with the request that the necessary preparations with regard to standardisation would be taken.

The Federation will make every effort to present at the next International Congress the standardisation of the greatest possible number of vegetable drugs but the Executive Committee requests the National Committees and the Delegates of the Central International Committee to study the propositions already published, especially in Austria, Hungary, Holland, etc., to discuss them and to forward their observations of a technical or professional order to the Secretary General, Professor Wolfgang HIMMELBAUR, Vienna (Austria), II., Trunnerstrasse 1-3.

A memorandum will be drawn up and sent to the representatives of each nation so as to give it the greatest possible publicity in every country; it will contain the bibliographical indications necessary for the enquiry.

It is of importance, therefore, after the discussions raised at our meetings during the last 5 or 6 years, that, in accordance with the Resolution of the Congress of Brussels, definite proposals for the standardisation and denomination with regard to the greatest possible number of vegetable drugs, be presented to the Congress.

Only after these proposals will it be possible to begin the publication of an International Code of Medicinal and Aromatic Herbs, which will be consulted by Pharmacopoeia Commissions with a view to a subsequent preparation of an International Pharmacopoeia.

SABATINI mp PERROT mp

After having heard the Report of Professor DE GRAAFF on the standardisation and establishment of the characteristics and standards of crude vegetable drugs, as well as the observations made by different members of the Executive Committee and of the Central International Committee, the Assembly expresses satisfaction at the interest shown by the International Pharmaceutical Federation in this question raised by Professor Wallis at the Brussels Congress in 1935.

While pointing out that, since its foundation, the standardisation of drugs has been studied by the International Federation of Medicinal Plants, and that numerous works have already been published, our Federation agrees that a collaboration between the two Federations is very necessary.

Professor DE GRAAFF, member of the Executive Committee, has been commissioned to communicate with Mr. POTJEWIDJ, Secretary of the International Pharmaceutical Federation, in order to form a connection between the two organisations so as to arrive as quickly as possible at the establishment of international regulations with regard to the vegetable drugs most in use.

MISCELLANEOUS INFORMATION:—

RESOLUTIONS ADOPTED BY THE IInd WORLD FORESTRY CONGRESS, BUDAPEST, 10-14 SEPTEMBER 1936.

I

Recognising the difficulties of convening regular meetings of World Forestry Congresses, the importance of which is essential and universally acknowledged;

Considering that the establishment of a new international body for Forestry must take account of the International Organizations already in existence, namely in the first place, of the International Institute of Agriculture at Rome, of the International Union of Forestry Research Institutes and of the International Timber Committee;

Considering that the object of any new body must thus be confined to the work of preparation for International Forestry Congresses and to the manner of giving effect to the resolutions adopted by these Congresses;

Considering that this body, in order to possess the authority and powers required, must be official in character,

Considering that – in view of the international relations subsisting between the Governments as concerns international institutions – the most speedy and simple way to achieve the purpose in view would be to establish this body within the compass of the International Institute of Agriculture, the Congress adopts the following resolutions.—

(1) That an International Permanent Forestry Committee shall be established, having as its object to prepare and to organize regularly and systematically, future World Forestry Congresses, and to see to the implementing of resolutions adopted by such Congresses ;

(2) That the Committee shall be established within the compass of the International Institute of Agriculture at Rome and vested with as large a measure of independence as possible;

(3) That this Committee shall be official in character, the members appointed being the nominees of their respective Governments;

(4) That this Committee shall have permanent quarters, but shall be empowered to meet elsewhere, particularly in those countries where future World Forestry Congresses shall be held.

The Congress shall request the main Organizing Committee of Budapest to remain in touch with the National Committees for the purpose of keeping their respective Governments informed.

It shall instruct the main Organizing Committee to enter into agreement with the International Institute of Agriculture as regards all questions concerning the new body.

It shall request the main Organizing Committee to summon, as soon as the preliminary work has been carried out and as arranged with the International Institute of Agriculture, a meeting of the delegates who have been appointed, together with a representative of the International Institute of Agriculture, a representative of the International Union of Forestry Research Institutes and a representative of the International Timber Committee. The purpose of this meeting shall be to determine the headquarters of this new body and to draft the regulations for the same, together with the administrative and financial provisions required for its proper functioning

II.

The Congress recommends —

That an end should be made to all obstacles, which have hitherto prevented the development of cooperative societies in forest economy,

That the International Institute of Agriculture should urge the Governments of the different countries to consider the action to be taken in this connection.

III.

The Congress is of opinion that the form to be recommended for international cooperation should provide so far as possible the opportunity for each State to choose among provisions and institutions, those which are most suitable for the particular circumstances of the individual case.

It calls upon the States to make known to the International Institute of Agriculture the position for each country as regards credits for forestry, together with all the measures that have been taken in this connection, indicating clearly the reasons why such measures have proved successful or otherwise.

It requests the International Institute of Agriculture to undertake the publication of the results of its investigations of this question.

IV.

The Congress recommends that in all returns of areas there should be indicated not only the areas under forest but also the annual average woody increment.

V.

The Congress expresses the desire that the Committee of International Forestry Statistics and the International Union of Forestry Research Institutes shall take steps with a view to the adoption of uniform methods and terminology in the forestry balance sheet so as to be in a position to institute the means for comparing the forestry statistics of the different countries and to unify as far as possible world forestry statistics.

The Congress recommends the organization in the various countries of:—

(1) A uniform schedule of forest resources, wherein there shall be indicated the capital resources in timber and the annual woody increment, and to renew this stock-taking from time to time;

(2) An accurate check on fellings and the utilisation of timber, which should be so developed as to become a series of permanent statistics on as large a scale as possible.

VI.

The Congress recommends:—

(1) That management schemes, alike theoretical and practical, for small private forest holdings should be worked out;

(2) That investigations of the various aspects of this question should be carried out in a number of countries.

VII.

The Congress considers it desirable that a thorough investigation should be undertaken in the various countries to determine the reasons for the variations, which take place in annual increment in regard to trees and stands.

VIII.

Being aware that the International Union of Forestry Research Institutes is in process of organizing a bibliography containing the titles of the publications, which have been published in the Reviews of different countries;

Being aware that the "*Forstliche Rundschau der Zeitschrift fur Weltforstwirtschaft*" has published, for some years past, abstracts of works and articles in all countries, prepared by national contributors and that it intends to increase its present staff by the addition of persons from other countries and to publish its abstracts in different languages;

the Congress considers it desirable to complete this work by the publication of the abstracts of the works, and articles that have been issued. Such publication would be greatly facilitated, if writers would arrange that their studies should be accompanied by abstracts in the French, German and English languages.

IX.

Recognising the necessity for the establishment of international rules for questions relating to sawn timber and for the introduction of a uniform terminology as also for a unification in international trade and practice in this connection,

the Congress recommends the establishment of a Committee, which shall undertake a detailed study of this question on the basis of the reports submitted to the Congress.

X.

The Congress recommends the collection, unification and publication of the reduction coefficients employed in the different countries for the conversion of the units and methods of measurements in current use into standard measurements.

XI.

The Congress recommends the establishment of a Commission which shall undertake the investigation of the problem of the organization and system of timber markets and to bring before the next International Forestry Congress the information or results obtained.

XII.

The Congress is of opinion —

(1) That, by means of an adequate legislation, the State should intervene not only in connection with the forestry system as applied to forests, but also for the working and industrialisation of timber products, so as to establish the necessary harmony between capital, labour and natural conditions. The application of this general principle may eliminate dumping on the world market

The State should also intervene —

(2) For the standardisation of the world production of unworked timber, by the regulation of fellings in each country;

(3) For the encouragement of the industries utilising semi-worked products and timber refuse;

(4) For the realisation of an international collaboration of Research Institutions and Forestry Administrations, which will bring about intensive production and the remunerative sale of resin;

(5) For the systematic collection of forest seeds by the Forestry Administrations and the Research Institutes and the communication to each country, by means of exchange, of the information obtained;

(6) For an intensive propaganda in each country by the institution of a special Week for the purpose, with a view to demonstrating the importance of forest fruits and plants, so as to enhance their value and ensure their realisation

XIII.

The Congress expresses the desire that more attention should be given to the study of geographical conditions in forest economy.

It is of opinion that with a view to securing a more positive success, the studies of forestry regions should be entrusted to the Forestry Research Institutes, within which there should be organized for the purpose, special Sections for Forest economic policy

It further expresses the desire that Forest Geography be introduced as a special subject in the Forestry Higher Schools.

XIV.

The Congress declares itself convinced of the necessity for developing a policy in favour of the utilization of timber, by means of national organizations specialized in this problem;

It would encourage the creation of such organizations in all countries where they are not yet in existence;

It would invite the Governments and forestry circles in all countries to associate themselves with these efforts and to support by every means the activity of the national organizations;

It would recommend that the International Timber Committee be invited to handle technological and chemical questions, by cooperation with experts in the subject, and also with other existing organizations.

XV.

The Congress calls on the Governments of the States represented, inviting them to give special attention to this very important question from the standpoint of the maintenance of forests, extending it to countries where such seed selection has not so far been in force, and, among the methods of obtaining pure seeds indicated in the course of the discussions of the Congress, to decide on those considered the most appropriate to the special conditions of the respective countries.

XVI.

With the intention of taking the initiative in arriving at an agreement and a collaboration such as is desired in the sphere of the organization of the production of seeds,

the Congress invites the Forestry Section of the International Institute of Agriculture at Rome to collect all data which may serve to throw light upon the organization of the production of seeds in the different countries, taking special note of all problems of international importance.

The Congress regards it also as desirable that the results of these enquiries be issued by the International Institute of Agriculture, under the form of a special publication.

XVII

In order to ensure the permanent possibility of testing the origin of seeds of forest stands in international trade, the Congress urges forestry workers in all countries to approach their competent authorities so as to obtain from them decisions establishing the methods of such control or testing, and ensuring its proper performance As a general basis for this control, it would be advisable to introduce a system of certificates attesting the origin of the seeds. These certificates should contain –

(*a*) the specification of the characteristics of a given country in respect of climate and cultivation;

(*b*) the specification of the value of seeds based on the results obtained in the Seed Trials Station of the country,

(*c*) the specification of the part of the seeds, to which the certificate in question relates, by means of the indication of the quantities of the stock and of the special packing marks.

The issue of these certificates of origin for seeds should be entrusted to a single Forestry Research Institute only on the territory of each State. These Institutes should also come to agreement as to the details of the organization of the international control of seeds, through the intermediary of the International Institute of Agriculture.

XVIII.

The Congress considers it desirable that a joint international organization for the study of the sociology of forest plants should promote co-operation, and should establish uniformity, in the naming of forest plant associations.

It considers that such a joint international body should undertake to establish and to maintain a list of forest plant associations, formed in accordance with the lines laid down in the Report and internationally recognised, as well as of their variants. In particular, this organisation should establish the principles to be observed in view of an international forest phyto-sociological cartography.

XIX.

The Congress considers —

(1) That forestry workers should call the attention of the respective Governments to the fact that the afforestation of bare lands is one of the most important economic problems of the near future;

(2) That the forestry workers in each State should be invited to present, on the occasion of future forestry congresses, reports on the afforestations of bare lands in their respective countries, in general, as well as, in particular, on the extent and methods of carrying out such afforestations;

(3) That it would be desirable to establish an international statistic of the afforestations of bare lands.

XX.

The Congress invites the International Institute of Agriculture to publish at as early a date as possible the material collected through the enquiry begun in 1931 on the subject of waste lands and to supplement this material by information supplied from the largest possible number of countries.

XXI.

Offering its cordial thanks to the Forestry Section of the International Institute of Agriculture for the monograph which it has undertaken to publish on the international enquiry into the control of torrent waters and the restoration of mountain areas, as also for the articles in the *Monthly Bulletin of Agricultural Science and Practice*, relating to the reclamation of mountain lands;

The Congress requests the Institute to send this publication not only to each country, but also to all the members of the Congress concerned in the problem, for the purposes of enquiries and legislation on the subject.

XXII.

Taking note of the observations made in respect of the control of torrent waters by means of afforestation work,

the Congress recommends that in the course of such control, " violence should never be done, by work of this order, to the natural development of a torrent area; it should rather be intelligently directed in a manner favourable to our purpose ".

XXIII.

The Congress recommends the system of terrace re-afforestation on arid and calcareous lands and on hill-sides with a pronounced slope towards the south,

The Congress further considers that, in order to ensure the efficacy of this system, it may at times be necessary to hold up these terraces, either by wattle fencing or by low walls. Even if the cost of this system is somewhat higher than for other systems employed, the success of the forestry and land drainage operations is thereby ensured.

XXIV.

The Congress takes note of the observations and recommendations made on the subject of the setting up of observation stations for the study of the influence of re-afforestation on the surface rainwater run- off, etc., and for the simplification of the comparison of the results and investigations in all countries.

The Congress recommends the method proposed of establishing a unitary plan not only for bare lands, but also for wooded lands

XXV.

The Congress recommends that all the work for restoration of mountain areas be entrusted to forestry experts.

It considers that the control of torrent waters is an economic problem of public interest, and that the administrations concerned — forestry, land drainage and agriculture — should be combined in a single Ministry, the function of which shall be to guarantee to the executive bodies that all such works will be properly effective.

XXVI.

The Congress takes note of the observations made on the subject of constructions, of which the object is to reduce slope in connection with the stabilisation of ravines.

The Congress recommends that, without advocating the universal adoption of a single system, various different methods should be employed, taking into account special local conditions and the occurrence of torrential flows.

XXVII.

The Congress resolves:—

That the problems of damage from forest fires should be investigated in the different countries and that the question of insurance against forest losses should appear on the agenda of the next Congress.

XXVIII.

For ascertaining the presence of the two kinds of cockchafer (*Melolontha vulgaris* and *M. hippocastani*), the method of digging trial ditches is recommended by the Congress, a method which not only renders possible comparison of the results obtained in the different countries, but also presents the problem in its true light.

XXIX.

The Congress recommends:—

(1) The study, at the place of origin, of all pullulations of noxions insects by professional forestry entomologists, directed by a central organization established for the whole country, or, according to size, for a department. The influence of environment on the movement of masses of insecte should always be studied at the point of origin itself. At the same time, it is essential to investigate: in what way such pullulation influences the vitality and the reproduction of the species in connection with the saturation of the living area; when this point of saturation is reached and what are the resulting reactions for the species. For the accomplishment of these investigations, which must be adequately subsidised by the State, forest laboratories, transportable and well equipped, should be organized, which can be set up at any time at the places of pullulation. In these laboratories, studies may be made of the origin, of the development of the pullulation and of the factors in the crisis;

(2) The establishment of permanent forest laboratories, in order that the influence of the living and dead natural environment and of other factors on the movement of the masses of noxious insects during calm periods, may be properly understood. It is advisable to organize the distribution of these permanent laboratories in accordance with the different climatic zones. It is necessary that the laboratories should be situated in the centre of the infested areas, of the main routes followed by the insects and in areas outside the danger zone, being in every case

placed directly in the privately owned forests. Apart from the study of biotic factors, it is especially necessary to give attention to the influence of abiotic factors (climate, weather, local climate, microclimate, etc., on insects and on their parasites. The laboratories, whether movable or permanent, should organize bioclimatic observation stations, suitable for biological studies. The object of these studies is to discover precisely the best types of forest formations and cultivation methods which afford the greatest resistance of environment to the chief kinds of noxious insects, in other words, those which set up conditions which are most distinctly unfavourable to the development and viability of such insects.

(3) The establishment of forestry stations in the remaining areas of virgin forest. The special function of these will be the study of the movements of the chief noxious insects of the cultivated forest in areas not touched by man, and the gaining of knowledge of the favourable and unfavourable elements in such areas

XXX.

The Congress resolves, on the one hand, to draw the attention of the Governements to the serious dangers arising from the disappearance and the destruction of the beauties of the forest and on the necessity for considering legislative and administrative measures of such a character as will eliminate these dangers

It resolves, on the other hand, to invite all forestry associations to place themselves, alike on the national as on the international scale, more directly at the service of the protection of natural conditions, by establishing intimate relations with the organizations which are working in this field and by collaborating in the education of the younger generation in this regard.

XXXI

Convinced of the heavy losses caused to the fertility of soils, to the level of the water tables, and in consequence to the populations themselves, by systems of cultivation and grazing carried on practically without control, as well as by forest fires against which no precautions are taken in the French colonies to the South of the Sahara (typical examples of such losses being supplied at the present time by the occurrences in the central areas of North America and in Australia),

The Congress takes note of the declarations made at the Congress as to the measures taken for checking the destruction indicated.

It is fully aware of the difficulties of a strict application of the measures in question;

It recommends none the less to the Governments concerned to come to an understanding so as to give the fullest attention to the protection of all existing forest lands, to reduce the damage resulting from wasteful fellings and especially from clearings, from grazing and from seasonal fires, and to inaugurate so far as possible a reafforestation of the zones most seriously threatened.

XXXII.

Noting that, since the International Forestry Congress in Rome in 1926, a number of International Congresses have dealt with questions of Tropical Forestry,

the Congress requests the International Institute of Agriculture at Rome to collect the studies and communications that have been issued, so as to inform the Member States of the Institute of these publications at least three months before each International Forestry Congress.

BOOK NOTICES *

François MALET, *L'économie marocaine avec Lyautey de 1912 à 1925*, 53 p., 7 fig., Paris 1936, Institut national agronomique.

The Author, Honorary Director General of Agriculture, Commerce and Colonisation in Morocco, summarizes in this interesting brochure the work of Marshal Lyautey. The organisation, improvement made in Morocco (French Zone), the results obtained are successively treated.

No one was better indicated to write this study, eloquent in its simplicity, than one of the most faithful collaborators of the Marshal, and a wonderful example of strength and confidence is given in the remarkable work of F. MALET. G. R.

Vincenzo DE BERTOLINI, *Appunti di Frutticoltura industriale*, 76 p., 36 fig. Treviso 1934, RR. Officine Grafiche S. A. Longo e Zoppelli.

This interesting brochure published under the auspices of the Provincial Inspectorship of Agriculture at Treviso, contains a summary of the lectures given by Prof. Alfredo PIERI in January, 1935.

Practical information is given on the cultivation and pruning of peach, pear, apple, plum, apricot and cherry trees. Well chosen photographs allow of an easy understanding of the recommendations given for fruit trees. G R.

J. H. FABRE, *Analyse des vins et intérpretation des résultats analytiques*, 346 p., 186 fig. Alger 1936, La Typo-litho et J. Carbonel.

This second edition, completely re-written and brought up-to-date, according to the International Conventions of 5 June, 1935, and the French Law of 21 March, 1936, is destined to guide technicians and the public through the maze of laws which govern the wine trade in France. Since 1926, in fact, the French legislation with regard to wines has become more complicated than ever. The chemical characteristics which wines must possess in order to be considered fit for consumption are strictly determined.

France being divided into eight vine-growing regions and Algeria into two, it is of importance to know that in each of the ten vine-growing districts thus established, a number of "*natural*" wines (having moreover qualities sometimes quite satisfactory, as much from the point of view of taste as from that of a hygienic or nutritive value) must, however, be considered as being "*unfit for consumption*" because they do not possess certain arbitrarily determined chemical characteristics.

The sale of these wines for human consumption consequently is most strictly prohibited, and the owners can only make some use of them *by distilling* them in order to recover the alcohol: as may be easily imagined this utilisation causes an appreciable loss to their market value.

"*Blended wines*", wines "*having right to appellation of origin*" and "*foreign*" wines are also subject to special regulations with which every wine-trader should be well acquainted, as in case of any infringement made (sometimes involuntarily) on his part, as, for example, putting up for sale any wine coming under one or other of the above-mentioned categories, not having all the chemical characteristics which are required in order to be qualified as being "*fit for consumption*", he runs the risk of being sued according to *Article* 13 of the *Law of* 1 *August* 1905, modified by the *Law of* 29 *July*, 1929: these Articles provide for penalties of fines which may (in case of a second offence) amount to one thousand francs for every offence, and an imprisonment varying from 6 to 15 days.

Besides, (and this may become absolutely ruinous) all wines considered administratively in France and Algeria as "*unfit for consumption*" are denominated by the "Service des Contributions indirectes" as "*alcoholic dilutions*". These are consequently compelled to come under the special system of regulations imposed on alcohols, and any failure to comply with this rigorous system automatically brings about:

(*a*) the forfeiture of the confiscated goods, as well as the containers of same;

(*b*) the reimbursement of customs and excise dues corresponding to the *pure alcohol* content (these dues amount at present to 2,400 francs per hectolitre);

---

* Under this heading are included short synopses of books received for review.

(*c*) the payment by way of a compromise of an administrative penalty which may amount to five times the dues on the alcohol not declared (i. e. 2,400 fr. × 5 = 12,000 fr. per hectolitre);

(*d*) a condemnation to a fine as well as the costs of the procedure.

The enumeration only of these formidable penalties appears sufficient to make all those dealing with wines (producers and merchants) to take into account the necessity for making every effort to grasp more or less the essentials of oenological chemistry explained in the present work, by taking note of all the regulations brought out up to the present date.

It is also worthy of note that the International Convention of 5 June, 1935, first signed by a dozen nations (Bulgaria, Chili, Spain, France, Hungary, Italy, Morocco, Poland, Rumania, Switzerland, Czechoslovakia, and Tunisia), having already been ratified by Switzerland (on 12 November, 1935), by Italy (on 6 January, 1936) and by France (by the Law of 21 March 1936), is now in force, so as to serve as a basis for international commercial transactions.

The twelve above-mentioned nations having also pledged themselves to render obligatory the use of the same analytical methods to serve also as a basis for commercial transactions before carrying them out in their own respective countries, the enormous interest which will be henceforth taken in these methods can be easily imagined.

The Author has made every effort, with the very clear explanations of the analytical methods, to give readers all the necessary information in order to follow and understand the work of chemical experts, and to correctly interpret an analysis chart.

The work, written so as to be understood even by those without technical knowledge, and being without indications of a bibliographical nature, will be of the greatest possible utility.
G. R.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General.

BONVICINI, M. Le piante e gli animali nell'agricoltura. Roma, Opera Nazionale Combattenti, [1936]. 290 p (Collana agraria dell'Opera Nazionale Combattenti, 1).

FONTANA, A. Divagazioni agrarie. Como, E. Cavalleri, 1936. 230 p.

POPESCU, N. Sfaturi pentru agricultori. Arad, Tip. Diecezana, [1936]. 316 p. [Advice for farmers].

General Agronomy.

STREMME, H. Die Böden des Deutschen Reiches und der Freien Stadt Danzig. Erläuterung zur Übersichtsbodenkarte 1 · 1000000 des Deutschen Reiches und der Freien Stadt Danzig. Gotha, J. Perthes, 1936 (Ergänzungsheft Nr. 226 zu « Petermanns Mitteilungen »).

Plant Protection.

SCHMIDT, M. Die Schädlinge des Obst- und Weinbaus. 4 Aufl. des Freiherr von Schilling'schen Werkes in völlig neuer Bearbeitung. Frankfurt (Oder), Gartenbauverlag Trowitzsch und Sohn, [1936]. 85 p.

STRANSKI, Iv. T. i I. NIKOLOV, Плѣвелитѣ въ културнитѣ семена на Брѣзнишко. София, 1935. [122] p., (Институтъ по общо земледѣлие при Агрономолесовъдския факултеть на Университета. София).
[Second title in German: Die Verunkrautung der Kultursamen im Bezirk Bresnik].

VERGUIN, J. Comment défendre nos vergers et nos jardins contre leurs ennemis. Paris, J.-B. Baillière, 1936. 304 p. (Petite bibliothèque horticole).

Crops of temperate regions

WALLIN, B. Vårâ beten. Deras betydelse, anordnande och utnyttjande. Stockholm, Nordisk rotogravyr, [1936] (Nordisk rotogravyrs handböcker för jordbrukare, 6, 7).
[Our pasturelands].

Crops of tropical and subtropical regions.

LEPLAE, E. Les plantations de café au Congo Belge. Leur histoire (1881-1935). Leur importance actuelle. Bruxelles, G. van Campenhout, 1936, 248 p. (Institut royal colonial belge. Section des sciences naturelles et médicales. Mémoires. Collection in-8º, tome 3, fasc. 5).

Horticulture.

SIROTTI, G. Il mandorlo. Contributo allo studio della coltura del mandorlo nella provincia di Cagliari. [Cagliari], Cattedra ambulante di agricoltura, 1935. 105 p.

Forestry.

SUCHECKI, K. Wykład nauki o siedlisku leśnem. Lwów, Nakładem Koła studentów inżynierji lasowej, 1935. 218 p.
[Forestry course].

Animal Husbandry.

MAFFEZZOLI, L. Alimentazione pratica del bestiame. (Equini, bovini, suini, ovini e caprini). Brescia, G. Vannini, 1936. 375 p. (Collana zootecnica G. Vannini [3]).

PRÉVOST, H. Manuel de zootechnie appliquée. Paris, Vigot frères, 1936. 78 p.

STANG, V. u. D. WIRTH. Tierheilkunde und Tierzucht. Eine Enzyklopädie der praktischen Nutztierkunde. Berlin, Urban & Schwarzenberg, 1936. Ergänzungsband. (Lieferung 53), 1936, p. 145-288.

SVANBERG, O.; I. JOHANSSON. Mineralämnen och vitaminer i husdjurens utfodring. Stockholm, Nordisk rotogravyr, [1936]. 2 v. (Nordisk rotogravyrs handböcker för jordbrukare, 4, 5).
[Mineral substances and vitamins in the feeding of farm animals].
v. 1. Mineralämnen (O. Svanberg). [Mineral substances]. 168 p.
v. 2. Vitaminer (I. Johansson). [Vitamins], 142 p.

Rural Engineering.

REICHSKURATORIUM FÜR TECHNIK IN DER LANDWIRTSCHAFT. Tätigkeitsbericht 1935. Berlin, Reichskuratorium, 1936. 118 p.

SIROTTI, G. La piccola irrigazione nella provincia di Cagliari. Cagliari, Società editoriale italiana, 1935, XII, 84 p. (Cattedra ambulante d'agricoltura della provincia di Cagliari).

[UNITED STATES]. BUREAU OF AGRICULTURAL ENGINEERING. Electricity on the farm. (A partial list of references), 1920-1934. [Washington], 1935. 110 p.

Agricultural Industries.

ANNUARIO AÇUCAREIRO PARA 1936. Rio de Janeiro, Edição de « Brasil açucareiro », [1936]. 306 p.

BESANA, G.; M. DEL GUERRA. Sottoprodotti del latte e loro utilizzazione. Milano, U. Hoepli, 1936. XX, 453 p. (Enciclopedia del caseificio, 3).

FABRE, JEAN-HENRI. Analyse des vins et interpretation des résultats analytiques en vue des transactions commerciales ainsi que de la répression des fraudes. 2ᵉ éd. Alger, La Typo-litho & J. Carbonel, [1936]. 346 p. (Traité encyclopédique des vins par Jean Henri Fabre, tome 2).
[« Continuation of the work: Procédés modernes de vinification »].

KARACHI COTTON ANNUAL 1933-34. No. 1. Karachi, The Karachi cotton association, Ltd., [1934].

SCOTTISH MILK RECORDS ASSOCIATION. Report on milk records for season 1935 with Appendix. Kilmarnock, The Standard Press, 1936. 549 p.

UNION SYNDICALE DE L'HUILERIE FRANÇAISE. (SERVICE DE STATISTIQUE ET D'INFORMATION). Les marchés des matières grasses en 1935. [Marseille, Soc. An. du Sémaphore], 1936. 66 p.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

THE INDIAN COTTON SITUATION, 1929-35 [*]

I. — GENERAL OBSERVATIONS – GEOGRAPHICAL DISTRIBUTION.

Cotton is one of the most ancient crops in India. Centuries of acclimatisation and natural selection in indigenous cottons, and the efforts made in the past to introduce exotic cottons, coupled with the plant-breeding work of recent times, have left a trail of varieties and sub-varieties suitable for most cultivable areas in India. Further, in the economy of early village life, cotton cultivation was an indispensable necessity to provide clothing for the village. The import of cheap foreign mill-made cloth, the curtailment of the out-put of the indigenous hand-loom weaving industry, the development of internal transport facilities and an export demand for Indian cotton were almost concurrent forces which helped the large-scale growing of cotton for commercial purposes. When these forces were gathering momentum, a new force, destined to have an ever-increasing effect on the development of cotton-growing in India, came into operation, this force being the requirements of the Indian mill-industry. As a result, few are the areas in India where cotton is not a cultivated crop, though its cultivation on a commercial scale is, under modern influences, becoming largely concentrated in those areas where cotton-growing is really profitable, either in the usual rotation of crops or in preference to food crops, sugar-cane, etc.

The climatological and other environmental conditions under which cotton is grown in India are more varied than in any other cotton growing country in the world. In the Hill Tracts of Bengal and Assam where cotton is chiefly grown on Garo Hills, Lushai Hills, Chittagong Hills and in Tripura State, more than a hundred thousand acres are situated in a region of heavy rainfall, the mean annual rainfall ranging from 75 to 125 inches. The climate is moist and, as a rule, enervating, and the mean annual temperature ranges from 75° to 80° F. Only a very rough variety of cotton known as " Comillas " cotton (*G. cernuum*), a sub-variety of which *G. cernuum sylhetense* has khaki coloured lint, is grown here.

To the west of these Hill Tracts lie the vast lower Plains of the Rivers Brahmaputra and Ganges which are not more than 800 feet above the sea level. On these plains up to Allahabad district in the United Provinces cotton is not an important crop and the mean annual rainfall of this Tract decreases from 100 inches to 40 inches from east to west. The few cotton-growing districts worth the name, *viz.*, Mymensingh in Bengal, and Saran, Darbhanga and Muzzafarpur in Bihar, are situated to the north of the river Ganges within the zone of mean annual temperature of 75° to 77.5°. The chief variety grown in the last mentioned three districts is a late variety of cotton, *G. intermedium* Tod.

---

[*] According to a report transmitted by the Imperial Council of Agricultural Research.

The Chota Nagpur Plateau comprising the north eastern Central Provinces and Southern Bihar and rising from a height of 800 feet on its outskirts to about 3,000 feet above sea-level in its interior portions is, like the adjoining Gangetic Plain, an unimportant cotton area. The original home in India of the acclimatized variety of upland Georgian known as *Buri* is, however, the lower elevations of this plateau, where the climate is said to be more like that of the Southern Cotton States of America than is the climate of the rest of India Ranchi and Santal Parganas are the only two districts of any importance for cotton cultivation in this area. The mean annual temperature is slightly higher than in the adjoining Gangetic Plain and rainfall averages 53 inches

The Indus Plain and the Upper Gangetic Plain, forming a semicircular trough to the north-west of Peninsular India with its base at about 24°N latitude, are the home of " Bengals " cotton of the trade, and of Punjab and Sind-Americans This tract having annually about 5 million acres under cotton covers Bundelkhand and Baghelkhand States, the western districts of the United Provinces, Delhi, the Punjab, the Peshawar District of the North-West Frontier Province, Sind, Rajputana States and Ajmer-Merwara Except for some high lands on the outskirts of the Malwa Plateau and in and around the Aravalli Range, this tract is not more than 1,000 feet above the sea-level The major portion of this tract has a mean annual temperature of 79°, though it is slightly higher in the main cotton-growing districts of Sind and lower in the northern districts of the Punjab, and the Peshawar Valley The rainfall is more varied, decreasing from 40 inches in the east to less than 5 inches in the west As a rule temperature in this area is very high, and humidity is low and the sowing of cotton is impossible until the break of the South-West Monsoon in June-July, except in irrigated tracts where it is commenced as early as March In the Canal Colonies of the Punjab, which account for approximately 60 % of the total cotton area of the Punjab, the summer temperature goes up to 116°F, while the humidity is low till about the end of July when the monsoon rains set in. Frosts are usually expected by about the end of December and continue through the greater part of January. The average rainfall is about 10 inches, almost the whole of which is received in June to October. South-Western Punjab is slightly hotter and drier and has also less rainfall than the Canal Colonies, but frosts are much delayed. South-Eastern Punjab and Lahore are as hot as the Canal Colonies, but rainfall is higher averaging 18" to 23". In Peshawar District the main cotton tract lies above the Peshawar Valley and escapes the high humidity and frost which characterise the climate of the Valley. The main cotton-growing tracts of Sind are Nawabshad, Tharparkar and Hyderabad, all of which are on the Left Bank of the Indus. Cotton cultivation has been recently introduced on the Right Bank. The mean maximum temperature remains above 100°F from March to October and attains a mean level of about 110°F in the months of May and June. The period known as "Chaliho" (40 dog days) extends from end of April to beginning of June and is characterised by hot winds, high temperatures, low humidity and bright sunshine. There are very little rain and cloudy conditions at this time. The average rainfall is about 6 inches, most of which occurs during the months of July and August. After October the temperature begins to fall rapidly so that by the end of December or the beginning of January slight frosts are expected In Rajputana the average maximum temperature of 94° under which cotton passes its early stages of growth falls to 91° towards its maturity stage, the mean daily variation increasing from 15° to 29° and the average relative humidity falling from 74 % to 50 % at the same time. A rainfall of about 13 inches at sowing time and during the early stages of the crop, followed by another three inches in the later stages is considered to be normal. The Gang Canal area is almost rainless, the annual rainfall being about 7.9" on the average, and is hotter and drier than the southern and eastern parts of Rajputana where cotton is grown under rain-fed conditions.

The Malwa Plateau lying to the north of the Vindhya Range is a distinct cotton tract. It is over 1,500 feet above the sea-level The Malwa Plateau is not coterminous with the political division known as Central India States. The Nimar district of Indore State and the States of Dhar and Barwani lie to the south of the Plateau in the valley of the Narbada. Likewise the northern districts of Gwalior State and also the Bundelkhand and Baghelkhand States are not situated on the Plateau, whereas a few States included in the political division of Rajputana Agency are wholly or partly situated on this Plateau. The average maximum temperature of this tract varies slightly from 88° to 86° as the plant passes from the seedling stage to the bolling stage, the mean daily variation in temperature increasing from 12° to 27° at the same time. The average rainfall is about 35 inches, a little less than two-thirds of which is received in the early stages, and about 6 inches each in the flowering and maturity stages The relative humidity is 60 % in the maturity stage and about 85 % in the early growing stage

The low-lying Gujerat (including Navapur taluka of East Khandesh district) and Kathiawar (including Cutch), in spite of the introduction of neglectum cotton after the droughts of 1899-1900, still form the most important herbaceum tract in India comprising 3-1 ½ to 4 million acres. From about 60° near the Par river in the extreme south of this tract, the mean annual rainfall steadily decreases from south to north and then north-westwards, until it is only about 15 inches in Cutch. The maximum temperature increases from about 105° in the south to about 112° in the north. Though the normal minimum temperature is over 40°, frosts occurred in January thrice during the last six years and damaged the crop. The monsoon in the extreme south generally commences by the middle of June, and spreads northwards decreasing in intensity. By the middle of July it is well-established over the whole tract, followed in its wake by the sowing of cotton. The close of September normally marks the end of rains for the tract as a whole, though they are received occasionally in the north and frequently in the south till about the end of November. The herbaceum type of cotton grown in the tract being a late variety, which is sown at the commencement of the monsoon and picked only in March-April, runs the risk of both unseasonable rains and cold spells or frost in January.

The rest of Peninsular India where cotton is grown can be considered as one extensive tract " The Deccan " in the larger sense of the word " the south " including the southernmost districts of the Madras Presidency. Broadly speaking, G. *herbaceums* are grown from Cutch to Cape Comorin along the regions to the east of the Western Ghats, G. *indicums* are chiefly grown in the middle regions in the Central Provinces, Hyderabad, Cuddapah and Kurnool, Coimbatore, Madura, Ramnad and Tinnevelly districts, and G. *obtusifoliums* are mostly grown in Godavari, Krishna, Guntur and Nellore districts to the east of the Eastern Ghats The Deccan Proper is a large triangular table land bounded on the north by the Vindhyan Range, on the west by the Western Ghats and on the east by the Eastern Ghats This tract can, however, be further sub-divided into three sub-regions.

(1) The central water-shed and the catchment areas of Tapti, Nerbudda, Wardha, Waiganga and Godavari rivers known as the Oomras tract form a distinct sub-region. It is bounded on the north by the Vindhyan Range and on the west by the Western Ghats The southern boundary slightly encroaches on the basin of the river Krishna and follows the course of the rivers Man and Bhima until the latter enters the Hyderabad State, and thereafter the watershed of the rivers Godavari and Krishna The north-eastern portion of the tract, watered by the upper affluents of the Mahanadi, is not a cotton tract, and the lower reaches of Nerbudda and Tapti form part of the *herbaceums* tract referred to already. Politically this sub-region comprises East and West Khandesh, Nasik, Poona, Ahmednagar and Sholapur districts of the Bombay Presidency, Barwani and Ali-Rajpur States and Nimar district of Indore State, the northern districts of Hyderabad State and the whole of the Central and Eastern districts of the Central Provinces and Berar, the rest of this province being essentially a non-cotton-growing area This tract is, indeed, the most important single, compact and intensive cotton-growing area in India, the annual acreage under cotton being about 10 million acres The major portion of the tract receives an annual rainfall of 30 to 40 inches, though, in the east, in the Wardha and Waiganga basins it is slightly higher and close to the Ghats it is slightly less. The monsoon generally breaks out in the second week of June in Khandesh, speedily extends to the east and to the south and continues till the end of September, a few falls in October being rare. Cotton sowing follows within a week of the break of the monsoon and is generally over by the end of the first week of July. The maximum temperature during the monsoon period is about 100° and the minimum 70°. During the monsoon, cloudy conditions are of frequent occurrence, but clear sky in the rest of the year is the rule. Included in this sub-region is the Deccan Canals Tract at the source of the river Godavari, where cotton is chiefly grown under irrigation. The mean annual rainfall in this area is 20 to 22 inches, and the maximum and minimum temperatures are 108° and 52° respectively.

(2) To the south of this sub-region lies the catchment area of the river Krishna covering the southern districts of Hyderabad State, and Karnatak (Bom-

bay Presidency), the northern districts of Mysore State and the Ceded Districts of the Madras Presidency. A considerable part of the Krishna basin lies sheltered on the leeward side of Western Ghats. Consequently it is the driest area in the Deccan. The mean annual rainfall is less than 20 inches in the country lying within 50 to 60 miles radius of Gangavati, a town in the Raichur district of Hyderabad State. From this region the mean annual rainfall increases outwards to the outskirts of the catchment area where it is about 30 inches. To the east of this area lie the coastal districts of the Madras Presidency through which the river Krishna and Godavari flow to meet the Bay of Bengal. The rainfall of these districts is 30 to 40 inches. The most important point about the Krishna Basin, stretching right across the Peninsula and coming under the influence of both the monsoons, is that, to the north of it, are grown the rain-fed early cottons of India, and to the south are grown the rain-fed late cottons, while in the central parts of the basin itself with its precarious rainfall both early and late cottons are grown, the early cottons being sown in July-August and picked in October, and the late cottons in August-September and picked in February-March. In the Deccan trap and nearer the Western Ghats the climate is more equable, the temperature rarely exceeding 100° or receding below 60° when the crop is in the field. Towards the central portion of the Peninsula slightly higher maximum and lower minimum temperatures may be expected.

(3) The southern districts of the Peninsula, comprising Madura, Ramnad, Tinnevelly, Salem, Coimbatore and Trichinopoly districts, form another sub-region. Sheltered from the monsoon by the long range of hills on the west, and Ceylon on the east, this low region is hot and arid. The mean annual temperature here being over 82.5° is as high as that of the central parts of the Krishna Basin. The plains close to the foot of the Nilgiri Hills have a milder climate. The mean annual rainfall over a large part of the cotton-growing area in this tract is only 25 to 30 inches, the major portion of which is received during the North-East monsoon. Cotton is therefore sown in the north of this tract in September, and in the south in October.

The important cotton-growing districts of Upper Burma are Sagaing, Lower Chindwin, Meiktila and Myingyan. These all fall within what is known as the " dry zone " in which the average annual rainfall is about 33 inches, the bulk of which usually falls in several short periods of heavy showers. Cotton is sown in the latter part of May with the first few showers of the rainy season. The mean annual temperature of this dry zone is 80°. The September-October rainfall is invariably sufficiently reliable to mature the crop, and the bulk of the crop is picked immediately after. In Lower Burma Thayetmyo is the chief cotton-growing district. It is also within the " dry zone " referred to, though the rainfall is a few inches more than in Upper Burma. A late-maturing variety of cotton is grown in this area. It is sown in June and picked in February-March.

It may be mentioned that cotton sowing and picking are going on in almost every week of the year in some part of India or other, which indicates the tremendous range in the sowing and picking periods obtaining in this country, due to variations in the climate.

In general, it may be stated that, in rain-fed cotton-growing tracts, moderate rains during the sowing period, and a well-distributed rainfall with occasional spells of clear weather during the period of growth and development of the plant up till flowering, are optimum conditions for the cotton crop throughout India. Rains, when the bolls are open, damage the crop. Likewise lack of moisture or untimely heavy showers at flowering and boll-setting period result in boll shedding. Bad opening of bolls is also caused by lack of moisture. In short, the character of the monsoon very largely determines the fate of the crop.

The highest and lowest areas of cotton in India during the five-year period 1929-35 respectively were 26 million acres in 1929 and 22 ½ million acres in 1932. The potential area is much larger and may be just over 30 million acres.

II. — Soils.

In India, cotton is grown chiefly on three distinct classes of soil. By far the most important of these is the black cotton soil or *regur*, on which about four-fifths of the cotton grown in India is cultivated. It may be alluvial in origin, as in South Gujerat, carried down by rivers from the Deccan trap, or, it may be soil formed *in situ* by the disintegration of underlying Deccan trap or certain types of rocks occurring in the archaean system. *Regur* thus extends over Cutch, Kathiawar, Southern Gujerat, the Malwa Plateau and the Oomras tract as a continuous whole, and in the Krishna-Basin and southern districts of the Madras Presidency in large but clearly defined areas, interspersed with red soils. In Bundelkhand and Baghelkhand, cotton growing is confined to the *regur* existing as an alluvium brought down by rivers from the Malwa Plateau, the sedimentary red soil formed by the weathering of the underlying rocks being thin and poor and unsuitable for cotton.

" *Regur* is a highly argillaceous, very finely grained dark or black soil containing a high proportion of calcium and magnesium carbonates. It is very tenacious of moisture and extremely sticky when wet. It permits, however, of cultivation being carried out within a short period after a heavy rainfall ". " The damp soil contracts markedly on drying, producing wide and deep fissures in the fields. The dark colour, often ascribed in the past to the presence of a considerable proportion of humus, appears to be due in reality to the large proportion of iron contained in the finest soil particles ".

Second in importance is the alluvium of the Indo-Gangetic type, derived mainly from the Himalayas and characterised by immense depth. It is met with in the whole of the cotton growing areas of the United Provinces, Delhi, the Punjab, the North-West Frontier Province, Sind, Northern Rajputana and Northern Gujerat. The range of variation in the soils of the Upper Gangetic Plain is much limited, but in the Indus Plain, soil is thin and poor in the upper regions and rather stiff in Sind, while the soil of Rajputana is sandy.

The third group of cotton soils is the " red " soil formed by the weathering of certain types of rocks of the archaean system. Though from the stand-point of Indian cotton as a whole, this soil is of very minor importance, in the southern districts of the Madras Presidency it is of considerable importance, as it is quite suitable for the raising of Cambodia cottons.

In the Hill Tracts of Bengal and Assam cotton is cultivated on hill sides which are for the most part overlaid with sand-stones and shales or conglomerates. In certain parts a surface soil of sand mixed with rich loam, which is of very light texture, is met with. In the Lower Plains of Brahmaputra and Ganges and in the Chota Nagpur Plateau, cotton is grown on light sandy loam soils, whether of gneissic origin as on the plateau or alluvial as in the plains. In Burma cotton is chiefly grown on upland gravelly soil.

As a rule, both black and red soils are deficient in phosphoric acid, nitrogen and humus, but not in potash and lime. In alluvial soils the amounts of nitrogen and humus vary, but are usually low. Potash and lime are adequate, and phosphoric acid, though not plentiful, is generally less deficient than in other soils.

A statement that any one of the three main soil types, alluvial, black or red, is more productive than another will always be open to objection, as it is almost impossible under the existing conditions to compare their productivity on an equal basis. The unsuitability, to one class of soil, of one type of plant found most suitable for another class of soil, is the chief obstacle in any such comparison. Besides, there are great differences in the cultural and climatological conditions under which cotton is grown on these soils. The problem is further complicated by the fact that *regur* does not respond well to irrigation, whereas both the alluvial and red soils give good yields when irrigated.

Generally speaking, irrigated cotton on alluvial soils has given the highest yields. In Sind, a yield as high as 700 lb. of lint cotton per acre has been recorded *on a sandy loam type of soil* for a coarse short staple cotton and 550 lb. for a fine long staple cotton, the difference in the yield of lint cotton being largely due to the difference in the ginning percentages of the two types. Lower yields are obtained on stiff clayey soils. At Coimbatore, irrigated Cambodia has yielded up to about 600 lb. of lint cotton per acre on red soils. It has been found in the Madras Presidency that when the same kinds of cottons are raised on both red and black soils those grown on the former are earlier, less productive, and lower ginning than those on the latter. The seasonal variations in the quality and quantity of cotton produced are more in the case of cotton produced on red soils than on black soils. As would be expected, the productivity of the best rain-fed black cotton soil never attains the level of irrigated red or alluvial soils. And yet yields as high as 250 lb. of lint cotton per acre have been obtained at Surat and Nagpur from fine medium staple cottons. The quality of cotton in India is firstly dependent upon type of plant grown, but often longer stapled cottons require a longer developing period. This is the factor which limits the growing of such cottons to areas like the Punjab and Sind where ample canal irrigation facilities exist, or to areas, like Coimbatore, where facilities for well-irrigation exist, or to areas like southern Gujerat, where rainfall is plentiful for the cotton crop, or to areas, like the Kumpta tract, where, even though rainfall is not plentiful, the moisture in the soil is conserved for a sufficiently long period on account of the equable climate. Longer stapled types, however, do not thrive at Coimbatore, due to the presence of jassids and to the unsuitable climatological complex.

III. — BREEDING AND GENETICS.

The discovery of a decade ago of samples of cotton materials at Mohenjo-daro in Sind during the archaeological excavations there made established beyond all doubt that the growing and manufacturing of cotton in the Indus valley dated as far back as 300 B. C. Little, however, is known about the varieties grown in ancient times or their distribution, except that the early coarse cotton used in the manufacture of the Mohenjo-daro samples was most probably the produce of a type of tree cottons (*G. arboreum-Watt*) (1). In 1788 (2) when the Court of Directors of the East India Company called the attention of the Indian Government to the cultivation of cotton " with a view to affording every encouragement to its growth and improvement ", important cultivated species of cotton in India were most probably *G. herbaceum* as *Kanvi* in Gujerat, or, Wagad in Kathiawar and Cutch, or, as Uppam in the Peninsula; *G. indicum* as Berari in Central Provinces, Berar, Hyderabad State and Malwa Plateau; *G. arboreum* which supplied cotton for the famous Dacca Muslins; and *G. obtusifolium* as Nadam in the Peninsula.

The history of the years 1790 to 1920 beginning with the efforts of Dr. Anderson to distribute seed obtained from Malta and Mauritius in the Peninsula and culminating in the constitution of the Indian Central Cotton Committee in 1921, to re-examine the cotton problems of India from the point of view of India as a whole, has been a series of sporadic attemps, both by Government and private agencies, to improve the quality and quantity of Indian cotton. For a long time efforts were concentrated on obtaining reputed exotic cottons such as of Malta, Mauritius, West Indies United States of America, Brazil, Peru, China, Egypt, etc., and trying them in different parts of India. Mention must also be made of Cambodia cotton which entered India about 1905 as an adulterant. Its cultivation was at first disappointing, but when it was tried under irrigation it proved a great success in the Madras Presidency. Not less were the efforts made to grow in other parts of India indigenous cottons reputed for quality. Briefly stated, the history of the nineteenth century is largely the history of determined efforts made in India to produce more long staple cotton for Lancashire. The last quarter of that century witnessed, however, the beginning of a demand, first from Indian and then from Japanese mills, for more Indian cotton. not necessarily medium or long staple. This demand steadily grew. narrowing the differences in prices between short and medium staple cottons, The premium offered for quality was not sufficiently high to make up the loss due to the lower yield of quality cottons. Expansion in the acreage and production of Indian short-staple cottons steadily continued under this stimulus till the close of the Great War. Since the war the foreign demand for short-staple Indian cottons has generally been fitful, largely governed by the factor of cheapness of Indian cotton relative to other world growths. During the years 1929-35 two new factors also came into operation, viz., (1) the increasing demand from Indian mills for superior cottons and (2) the uncertain foreign market for short-staple Indian cottons. These changes in the demand for various qualities of Indian cotton and the opening-up of more irrigated areas suitable for the growing of medium or long staple cottons have largely been responsible for the changes in the repartition of strains in recent years.

---

(1) A note on the Early History of Cotton, 1928, by A. N. GULATI and A. J. TURNER.

(2) The Culture of Cotton in India, 1851. FORBES ROYLE.

It would appear that the most important change in the distribution of new types that occurred in India, as a result of the growing demand for cotton with high ginning outturn, is the invasion by *G. neglectum* species, originating probably somewhere in the Malwa Plateau and spreading in due course practically all over India. Wherever it had been introduced, it received a warm welcome on account of its hardiness, higher yield of seed cotton and higher ginning percentage, and it soon displaced, to varying extents, the original local cotton. It has since come to light that in several areas this type of plant is highly susceptible to wilt disease.

As a result of the selection work done in India since the commencement of this century, several new strains have been put into general cultivation, the most important of which are A-19 in the United Provinces, 4-F, 289-F, 43-F, and Mollisoni in the Punjab; 4-F 98, Sind Sudhar (289-F-1) and Sind N. R. (27 W. N.) in Sind; 1027 A. L. F. and Wagad-8 in Gujerat; Banilla in Khandesh; Verum-262, V. 434 and Late Verum in the Central Provinces and Berar; Jayawant and Gadag-1 in the Karnatak and Cambodia Co. 2, Nandyal-14, Hagari-1 and Karunganni C-7, A-10 and K. P. T. 1 in the Madras Presidency.

The main object of the selection work in these cases was not only higher yield but also superior fibre qualities. Resistance to wilt in such wilt-infected areas as Khandesh, Karnatak, and the Central Provinces and Berar was also an equally important object in view in the selection work carried out in those areas. Hardiness and ability to withstand the following conditions has been one of the foremost considerations in the selection work in Sind:—

(*a*) Adverse soil and weather conditions,

(*b*) Insect pests and diseases, especially Jassids, causing the so called red leaf disease, white ants and root rot;

(*c*) Late sowings without being affected by Jassids, as is generally the case.

The Technological Laboratory (1) of the Indian Central Cotton Committee is primarily meant for helping cotton breeders in India by furnishing them with the results of the tests carried out at the Laboratory on small samples of cotton sent by them. Besides this regular service at the disposal of every research worker on cotton, certain large experimental stations have on their staff assistants trained at the Laboratory and expected to do on the spot such minor tests and fibre analyses as are possible within their competence.

---

(1) For detailed information regarding the work of the Laboratory, please refer to "Cotton Research in India» by Dr. Nazir AHMAD, M. Sc., Ph. D., F. Inst. P, Director, Technological Laboratory, Matunga, Bombay.

IV. — METHODS OF CULTIVATION.

(1) *Fertilizers.* — The application of farm-yard manure is the most common practice in all cotton growing tracts, but this does not, however, mean that manuring is widely resorted to. In South Gujerat farm-yard manure is applied to cotton at the rate of 4 to 5 tons per acre once in six years and in North Gujerat and Kathiawar cotton is not generally manured. In Khandesh and the Deccan Canals Area farm-yard manure is as a rule applied at the rate of 2-1/2 to 7-1/2 tons and 5 to 7-1/2 tons per acre respectively. In the Karnatak the previous crop of *Andropogon Sorghum* receives manure at the rate of 2 to 3 tons per acre, but in the case of Dharwar-American cotton, which is in some parts cultivated without any rotation, it is manured once in four years with a heavy dose of ten tons per acre. In the Punjab the application of 5 to 7 tons respectively of farm-yard manure has given profitable returns in the cases of both American and *desi* varieties. Cultivators in the United Provinces and the Punjab, however, apply manure to the previous crops and not to cotton. In Sind the farm-yard manure is applied to the cotton crop though not without regard widely. In the Madras Presidency farm-yard manure is the common manure applied, but the proportion of fields manured every year is exceedingly low on the whole. Cambodia cotton grown under irrigation is invariably manured indirectly in most cases to the previous crop. Greater attention is paid to the manuring of cotton grown under irrigation. As in the Punjab, manuring the previous crop appears to be more beneficial to cotton. In the Central Provinces and Berar farm-yard manure, is not used, as extensively or in as adequate quan- tities as it should be. In Burma, on the contrary, the use of farm-yard manure is general. In the Southern districts of the Madras Presidency and in Khandesh sheep-penning is also adopted.

As previously stated, all the three chief types of soil on which cotton is cultivated in India are deficient in organic matter, and this fact and the uncertainty of the rains in certain rain-fed cotton tracts are probably responsible for the limited use of artificial fertilisers. In any case, nowhere in India is the use of artificials common among cotton growers, and not even on experimental farms have they given uniform and conclusive results, which goes to prove that their application is a paying proposition. Ammonium sulphate when applied on black soils gave increased yields in Madras but the extra yield did not cover the cost of manure. Application of various doses of nitrate of soda, ammonium sulphate, calcium cyanamide, and a complete mixture to American and *desi* cottons all resulted in financial losses in the Punjab except when Nitrate of Soda was applied in small doses to American. Experiments at Sakrand (Sind) have shown that application of sulphate of ammonia along with a basic dose of organic manure, viz., compost, increases the yield economically. The results obtained on the Deccan Canals area, even with very small doses of Sulphate of Ammonia and Nitrate of Soda, also show that artificials do not pay except when cotton prices are high. Further experiments are still in progress.

(2) *Preparation of the Soil.* — Recent progress made in the mode of preparation of the soil is the use of the iron plough instead of the harrow

in Karnatak, and two waterings before sowing instead of the usual one in the Punjab, where the Agricultural Department has further recommended the preparation of a good seed bed with the furrow turning plough for the first ploughing of the stubble. In Sind the secret of successful cotton cultivation lies in dry ploughing of the land in the winter season, application of 8 inches irrigation before sowing, sowing the crop in rows with a drill and interculturing the crop with a light plough. These methods are now rapidly coming into vogue with the Sind cultivators. In the Madras Presidency the mould-board plough is coming more into use, and in the Tinnevellies tract and Cambodia instead of being broadcast the seed is being sown in lines 2-½ feet apart. In Burma the use of a cheap plough-share designed by the Agricultural Department is being increasingly used as an attachment to the indigenous plough body to ensure the better preparation of the soil.

(3) *Crop Rotation.* — The usual rotation followed in the wheat-growing tracts of India year after year is cotton for the autumn harvest followed by wheat for the spring harvest. In the United Provinces this rotation is often varied and sugarcane is grown in one year followed by wheat and cotton in the second year. In the Punjab, cotton follows also toria (*Brassica campestris*), gram sugarcane and berseem. In cases where cotton is grown after wheat or gram, the time for preparation of the soil is very short and only one or two ploughings are given before the seed is broadcasted. Rotation of crops has for long been unknown in Sind, and efforts are being made by the Agricultural Department to replace by a suitable system of crop-rotation the old method of fallowing. In the pre-barrage period land was cropped once in three years, two years being fallow. Under the Lloyd Barrage Canals project, the land is supposed to receive one complete year's rest or fallow in five and in the five year's cycle of ten agricultural seasons, crops have to be grown in four seasons in the proportion of one cotton and two wheat and oil-seeds and the land is allowed to remain fallow in the remaining six. The common rotation at present adopted is cotton, wheat and fallow. In the black cotton soil areas of India, where *jowar* (*Andropogon Sorghum*) is an important crop, cotton is chiefly rotated with this crop. In the Central Provinces and Berar no fixed rotation is followed and cotton is rotated with *jowar* at variable intervals, depending on the prices of cotton and the nature of the previous season's crop, though it has been shown that cotton-*jowar*-groundnut is the best rotation to maintain the fertility of the soil. *Tur* (*Cajanus indicus*) is also often grown along with cotton in the proportion of about two lines of *tur* to 14 of cotton. It is also grown in mixture with *jowar*. In Gujerat and Kathiawar much the same system is followed. In North Gujerat it is not unusual to grow cotton year after year on the same land without any rotation. In some parts of the Hyderabad State *jowar* is grown as a spring harvest crop while in the rest of the State it is the usual autumn harvest crop. In either case it is rotated with cotton. In Hyderabad and the Madras Presidency where groundnut is grown, the two-year rotation of *jowar* and cotton has not yet been totally replaced by the three year *jowar*-groundnut-cotton rotation, but it is being gradually replaced. The tendency is to introduce groundnut in the rotation

when early and timely rains are received. In the Ceded Districts of the Madras Presidency, cotton and *korra* (*Setaria italica*) and cotton and horsegram (*Dolichos biflorus*) are the common mixtures. The mixtures are generally sown earlier than pures. In the Deccan, Karnatak and the southern districts of the Madras Presidency, *bajri* (*Pennisetum typhoideum*) sometimes takes the place of *jowar* in this rotation, according to the nature of the soil. In Burma the two systems of rotation in practice are a two-year rotation of early sesamum, followed by beans and cotton and a three-year rotation of late sesamum, cotton and fallow.

Spacing and Thinning. — In the Indo-Gangetic plain cotton is usually sown broadcast with the result that the crop is by no means uniform; it is too thick in some places while in other places it is full of gaps. The good cultivator in the United Provinces gives a spacing of 2 to 2-½ feet, but he grows some other crops like pulses, gingelly, etc. in between. In the Punjab, no regular thinning is attempted where the seed has been sown broadcast, but a country plough is run once or twice crosswise in the field to serve the double purpose of thinning and interculturing. The Agricultural Department has for long been recommending the drill sowing of cotton at the rate of two plants per hole, the distance between holes being 15"-18" and 12"-15" respectively, and the rows being 3' and 2-½' apart respectively for Americans and indigenous cottons. Many cultivators have now adopted this method. Thinning is usually done by hand. In Sind the crop is sown broadcast. Thinning is not attempted owing to the fear of possible damage by hot winds and white ants specially in the case of American cottons. The drill sowing of cotton has been recently introduced, the distance between rows being 3 feet for American cottons and 2- ½ feet for *desi* cottons, the plants in the row being thinned to 9 inches in the case of *desi* cotton and 12 inches in the case of American cottons. In the Madras Presidency Salems and Tinnevellies are sown broadcast and left without any thinning.

In the black cotton soil areas and on red soils, cotton is, as a rule, drill-sown in rows the distances between plants and between rows depending upon the fertility of the soil, the size of the plant, etc. In Central India the rows are usually 14 " to 18 " apart, while in the Central Provinces experience has shown that the spacing of 18 " between rows and 7 to 9 inches between plants give the best results. The same distance between rows is generally maintained in the rest of the Oomras tract, except in the Deccan Canals area, where it is only 12 " to 15 ". Experiments carried out by the Agricultural Department have, however, shown that here too a spacing of 18 inches gives better results. Though an obvious defect of drill sowing is the uneven distribution of seed in the row, the cultivator rarely attempts to thin his plants except where there is too much crowding. Thinning is not usually done in rainfed cotton tracts.

In the Herbaceum tract, the cotton is drilled in lines three feet to 18 inches apart. Thinning is in vogue in South Gujerat where the distance between rows and plant to plant in the same row is maintained at 3 feet to 5 feet and one foot apart respectively.

As in the Oomras tract, cotton is drill sown in the Krishna-Basin at a distance of 18 inches between the lines. In the Karnatak the 18-inches spacing has been given up by some cultivators in favour of the 24-inches spacing. Further increase in the spacing is not considered advantageous. Thinning is not practised.

In Burma the prevailing practice of sowing cotton is, as already mentioned, broadcasting, but care is taken to thin out the crop by harrowing the field when the plants are 6 inches high. However, line sowing with the use of intercultivating implements has now been taken up on quite a large scale and the area is expanding year by year.

Use of machines in cultivation. — The use of machines other than the ordinary indigenous agricultural implements and a few improved and remodelled types of such implements is rare in India. It is not that the modern developments in mechanical cultivation elsewhere in the world are unknown in India, nor because some of them, particularly the use of tractors for opening up new land and deep-weeding have never been tried or found unsuccessful, but that the economic condition of the peasantry as a whole does not permit the development of mechanical cultivation. In the first place, the average size of the holdings is so small that only a very small minority could economically make use of any expensive machines. Nor has the idea of co-operation and co-operative enterprises developed far enough to encourage the use of machines on a co-operative basis. Even if this main obstacle could be surmounted, it is problematical whether machines could compete with cheap manual and bullock labour, readily available throughout the length and breadth of the country, except where Nature herself is inhospitable. Apart from man-power, cheap animal-power is also available. The maintenance of cattle is a necessity for milk and manure in many parts of India and, so long as these two purposes can be served along with that of animal power without any extra burden on the cultivator, and as the cattle can be fed on the by-product, of the farm or on cheap fodder crops, it is extremely doubtful whether complicated machinery, requiring heavy capital outlay and recurring expenditure in cash, can replace animals. As there are always small landless cultivators ready to help landholders with their own labour and cattle on the basis of a share in produce, the land-owning cultivator finds it always convenient to call for such help instead of using machines. Further it has not yet been definitely proved whether deep cultivation of the black soils of India is necessary for soil aeration. It has been suggested that the natural fissures produced in the soil on drying serve the purpose admirably. On the whole, it may also be said that is has not been conclusively established that, all things taken together, mechanical cultivation is more paying than the methods at present in use. In Sind trials with tractor ploughing on a large scale have been successfully carried out and found to be economical. There is great demand for tractor ploughing on contract system by big landholders in connection with the opening up of new lands. The Agricultural Department has been rendering great assistance to zamindars in this direction.

V. — IRRIGATION.

" The suitability of black cotton soil for irrigation is a matter of controversy and appears to differ according to the composition of different varieties of this soil ". Where the depth of soil is not very shallow, irrigation either by wells or canals, can be advantageously applied to cotton grown on red soils. Alluvial soils can, as a rule, be irrigated with great advantage, and hence large irrigation projects are in operation in the Indo-Gangetic Plain. In the United Provinces about a third of the area under cotton is irrigated. The Punjab possesses the greatest irrigation system in the world and about 70 % of the total cropped area is irrigated. Cotton is mainly an irrigated crop in the Punjab, about 92 % of the total cotton area of 2.2 million acres being irrigated. In Sind, which is almost entirely dependent on irrigation for cotton cultivation the area of cotton has considerably increased since the opening of the Lloyd Barrage Canal system in the season 1932-33. From about a quarter million acres in 1931-32, the area of cotton rose to about 804,171 acres in 1935-36. In Bikaner, in Rajputana, a few thousand acres of irrigated cotton are annually grown. In general, very little irrigated cotton is grown on black cotton soils, whether sedimentary or alluvial. The vast cotton areas of the Malwa Plateau, the Herbaceum Tract and the Comras Tract are therefore mainly rain-fed, except for small scattered areas irrigated from tanks and wells. The only irrigation systems of any importance to cotton in these tracts are the Deccan Canals Area, where about 17,000 acres are put to cotton, and the Gokak Canals Area in the Karnatak, where a few hundred acres are cropped with cotton. On the red soils of South India some 40 to 60 per cent. of Cambodia cotton is grown under irrigation. The area under irrigated Cambodia in the Madras Presidency is 1.5 to 1.75 lakhs of acres.

In the Indo-Gengetic Plain a new system of canals has recently been opened in the Central and Eastern parts of the United Provinces. It is possible that cotton cultivation which has till now been of secondary importance in this area, might extend in the future. In Sind, the maximum area that could be cropped with cotton under the Lloyd Barrage Canal System has not yet been reached. An increase of about 25 % over the present area is anticipated. It is possible that a few thousand acres might be brought under cotton in the areas served by the recently completed Nizamsagar Project in the Godavary Valley of Hyderabad State, the Irwin Canals of Mysore State, and the Mettur Project in the Tanjore district of the Madras Presidency. Apart from these, there appears to be no possibility of an immediate extension in the irrigated cotton area in India. Four irrigation schemes, which are now under consideration and would, if and when completed, bring more land under cotton, are the Bakkra Dam Project in North Rajputana, the Purna Project in the north of Hyderabad State, the Tungabhadra Project in the Krishna-Basin, and the Lower Bhavani Project in the Cauvery basin.

Irrigation Practice and Erosion Control. — As already stated the Indo-Gangetic Plain is the most extensive irrigated cotton tract. Most of the cultivated areas, where cotton is grown in this plain, are situated on broad plains where drainage is good and rainfall is scanty. Soil erosion is therefore a phenomenon of no great consequence in this tract as a whole. Water for irrigation is obtained from the net work of canals constructed for the purpose. In the Punjab the usual practice of applying the first irrigation 5 or 6 weeks after sowing is being given up in favour of one between 21 and 30 days after sowing, which is done at the end of April and during May. Usually 4 to 6 irrigations, all of about 3 acre-inches each depending on the quantity and distribution of rainfall, follow the last one being given before the 15th October. In Sind, an initial irrigation of 8 inches applied in two consecutive doses is given a few days before the seed is sown. The standing crop receives a first watering of 4 inches about a month after sowing and consequent waterings of 3-4 inches are given at an interval of 15-20 days and irrigation is stopped by the middle of October. The best results, however, are obtained if the second and third irrigations of 4 inches each are applied at an interval of 20 days and the following two irrigations of 3 inches each at an interval of 15 days and the remaining irrigations of 2 inches each at intervals of 10 days up to the middle of October. The only other canal irrigated area of importance to cotton is the Deccan Canals tract where soil erosion has been checked by dividing fields into half-acre plots by means of bunds. The usual practice of irrigation in all canal areas is by flooding.

On the Malwa Plateau and in the Karnatak, Hyderabad State, and the southern districts of the Madras Presidency, where Cambodias and American types of cotton are grown under well or tank-irrigation, soil erosion is prevented by forming small beds. Observations made at Coimbatore show that irrigations once in three weeks are most profitable and that there is hardly any appreciable difference between ridge and bed systems of irrigations.

In some of the rain-fed tracts, the system of making field embankments to prevent soil erosion is being followed. On the whole, whether in the Herbaceum Tract, or on the Malwa Plateau, or in the Comras Tract, or in the Krishna-Basin, or in the southern districts of the Madras Presidency, cotton fields are on fairly level ground and soil erosion is not, generally speaking, a serious problem though it is serious enough in the Hill Tracts of Assam and Bengal and in Burma where, cotton is cultivated mostly on land with a good degree of slope. In Burma efforts are being made to introduce a system of making small cross bunds along the slope of the land. In the Hill Tracts of Bengal and Assam, on the other hand, the primitive nature of the cultivation as well as of the cultivators is a serious impediment even if any control measures are deemed necessary.

Cotton Seed Production. — In olden days before the establishment of ginning factories, seed-cotton was ginned by each cultivator by hand or foot gins. This enabled him to keep the best, seed for sowing purposes and to use the rest for feeding cattle. With the advent of ginning factories this practice has practically been given up except in remote villages situated far away from factories, and where the cost of transport to and from factories is high. Under the system now in general vogue, the cultivator is entirely at the mercy of the gin-owner for the supply of seed for sowing or for cattle food. The gin-owners are not much interested in the supply of pure seed to cultivators for the purpose of sowing and do not, therefore, take the trouble of collecting pure seed separately. The natural consequence is that the seed obtained from any ginnery is bad, a mixture of two or more varieties, and is used both for cattle food and for sowing. As the quality of the crop raised from such mixed seed becomes poorer from year to year, deterioration in the general quality of the produce is the inevitable result.

As there is, therefore, no organised effort on the part of cultivators to stem the tide of deterioration, the Departments of Agriculture are doing their utmost to keep up the purity and quality of the improved strains of cotton given out by them. The general method adopted has been tersely described as the " Wave " system. The necessary quantity of selfed seed is raised in the first stage of the system on the Experimental Farm under the direct supervision of plant-breeders. This seed is multiplied the next year or in the second stage on the Farm again under the supervision of agricultural officers who take care to remove all rogues and aberrants found in the field. The produce is ginned separately and the seed given out to cultivators, who agree to grow it pure and gin the *kapas* under Departmental supervision and hand over the seed to the Department. The purity of the crop is further maintained in this stage by careful inspection of the fields and the removal of all off-types. The multiplication of seed on the fields of selected cultivators may sometimes be extended to another year, that is, in a fourth stage of the " Wave " system. In this case the third and the fourth stages will be respectively known as the Inner and Outer Reserved Areas of Grantee Estates or Seed Farms. The cultivators undertaking to grow the seed supplied by the Department in these two stages are under obligation to run their farms efficiently and to agree to certain conditions imposed by the Department regarding the inspection of their fields, roguing the crop, the ginning, of their produce under Departmental supervision and the sale of the seed back to the Department. The cultivators are not expected to undertake all these obligations for nothing. They are compensated in one way or another for the trouble they take. The seed obtained from the Reserved Area is sold by the Department for general cultivation and no control is exercised over this general area. The cultivators are not under any obligation and they are at liberty to sell their seed to others. Thus a continuous supply of pure seed to a large number of cultivators is maintained.

Under the " Wave " system an area of one acre of dry land maintained on the Government Farm for the production of selfed seed will yield sufficient seed to sow on a seed-multiplication area of ten acres at the least, the actual extent being determined by the variety and its seed rate per acre. In the third stage a further extension to 100 acres and in the Fourth Stage to 1000 acres are possible, and in the last stage 10,000 acres could be covered. Where the seed-rate is low, or productivity is high, as in irrigated areas, the total extent of the area covered in the five stages is much greater. At the same time. if run on sound lines, there is no reason why the system should not be made self-supporting under favourable circumstances. Ordinarily, the actual extra cost of pure seed per acre of the total area covered would not exceed a half-anna.

Cotton seed is largely used in India for sowing and for feeding cattle. The fuzz adhering to the seed of certain varieties detracts from the value of such seed for feeding purposes, as there is a belief among cultivators that such fuzz is harmful to cattle.

THE DEVELOPMENT OF SMALL MOTORS IN AGRICULTURE

In the present development of agricultural technique, an increasing use is noted, on small and medium-sized family farms, of small motors of the electric or internal combustion type.

The electric motor, with unlimited possibilities for subdivision of energy, always ready for use, very reliable in action and easily transportable, occupies an advantageous position from which it will not be readily ousted by other types. However, from an economic point of view, it is not so entirely satisfactory to the farmer, as the price of electricity is relatively higher than the cost of the fuel required for the Diesel motors, which have latterly attained a very high degree of efficiency.

The Diesel motor is being increasingly utilised in agriculture, especially for field work. In the construction of small heavy oil motors, the semi-Diesel has long been considered the best and was practically the only one used. It is only recently that the small Diesel motor has competed advantageously with it and will probably tend to replace it. The small Diesel motor may be considered a logical evolution of the semi-Diesel and also of the air injection Diesel. This air injection effected by means of a compressor, rendered the work of small motors heavier and more difficult, and has therefore been discarded. An attempt has been made to solve the problem of a good atomization of the fuels by the introduction of the system of a precombustion chamber.

Although the thermal efficiency of Diesel motors without a compressor may be less, the mechanical efficiency is greater owing to the abolition of the air pump. The difficulty of the atomization of fuels without air consists in the necessity of obtaining a very fine spray and this difficulty is increased by the use of heavy oils and by the augmentation of the speed of revolutions, in order to lessen the weight of the motor.

As has been noted, in order to obtain a good atomization of the fuels, they must be injected into a precombustion chamber placed at the head of the cylinder and in communication with it. The injection must commence fairly early in order that the fuel for atomization in the precombustion chamber, may be drawn, as the piston rises, into the combustion chamber and atomized.

The method of the precombustion chamber has a great advantage: it guarantees a process of uniform combustion, an easier transmission from compression to ignition and to the expansion of the gases. It also allows the use of larger jet holes, which is a great advantage for the good working and smooth running of the machine.

In recent years, great progress has been made in the construction of small motors; at the same time it becomes increasingly evident that efforts are being made to construct machines, the fuels used for which may be as far as possible, independent of importation, that is to say, fuels which may be produced in the country itself.

This leads to experiments, at present being carried out in various countries, for the replacing of light fuels by other liquid or solid fuels, which also involves modifications in the construction and working of the motors. Note should first be made, as being of great importance to agriculture, of the trials directed to the use, in place of oil and motor spirit, of either alcohol obtained from agricultural products or of wood or charcoal.

MOTORS USING ALCOHOL.

The majority of countries which do not possess mineral oil resources, have, during recent years, been mixing about 20 per cent. of alcohol with ordinary fuels, a mixture which does not cause any change in the working of motor fuel machines. Up to the present, there has been no question of using pure alcohol and this not for technical reasons but for economy, the price being appreciably higher than that of motor spirit.

The position is now changing in some countries, because a more costly production obtained in the country itself, may, in certain cases, be more advantageous than a purchase at a cheaper rate abroad.

It is for this reason that special interest is taken to-day in the use of pure alcohol. The experiments undertaken to adapt existing petrol motors to running on alcohol have not succeeded, because the characteristics of alcohol are quite different from those of motor spirit, and hence specially constructed motors are required.

The chief difference is the following: motor spirit gives 10,500 calories per kg., while alcohol has a smaller calorific value (about 6,200 cal. kg), but on the other hand, however, allows a higher rate of compression and accordingly better thermal efficiency. It is necessary, therefore, to increase the compression in alcohol motors, a factor of considerable importance in the profit capacity of the machine. Petrol motors when adapted for running on alcohol, cannot stand for long the considerable increase in the compression, which has to be raised to 9 : 1 in order to allow a satisfactory use of alcohol. The increased strain, imposed on the motor by this increase of the compression, requires in fact a more solid construction of all the parts.

The combustion of the alcohol in the cylinder is effected by the introduction of less air than is required for motor spirit; but it lasts longer, which makes it necessary to advance the spark in order to avoid the escape of incompletely burnt gas.

At normal temperature, alcohol does not evaporate as easily as motor spirit, but at high temperatures the evaporation is about equal; thus the alcohol should first be heated to 40° C, which can be done during the working of the motor by means of the exhaust gases. At starting, this heating can more easily be effected with the aid of an electric battery.

A certain water content in the alcohol does not cause any difficulty in the running of pure alcohol motors, on the contrary, it eases considerably the combustion shocks and helps to bring about a good combustion by decomposing into hydrogen and oxygen.

From the above explanation, it will be seen that motors constructed specially for use with alcohol should be considered as being, technically, at least on a par with petrol motors.

SUCTION GAS MOTORS.

For some time, attempts have been made to utilise gases obtained from wood and charcoal as a motor fuel, the raw material being cheap and found in abundance in the forests.

Motors using wood and charcoal, though considered by many to represent a retrograde step from a technical stand point, have, however, of late acquired importance, and the possibilities of development have increased.

At the present time it is possible to bring about by using wood and charcoal a regular and economic working even of small motors, provided that the characteristics of suction gas equipment and the care required for their installation are duly taken in account.

The suction-gas equipment itself usually consists in a kind of cylindrical producer filled with the fuel, the dimensions of which are regulated according to requirements. The first time that the suction gas equipment is used, and subsequently, every time that it is completely emptied, wood charcoal is to be introduced by means of a loading funnel, then spread in a layer and covered with wood; then the funnel is hermetically sealed and the charcoal lighted. This is an indispensable condition for the proper working of the process of gas formation: it must always regenerate itself. At the same time, only fuel should be used suitable for transformation into wood charcoal, such as hard or soft wood cut up into small pieces about 8 cm. long and 20 cm in diameter.

In order to obtain a gas free from tar, without using a special separator, inverse combustion gas producers are made, in which the tar formed is drawn up into the combustion zone and burnt.

The fuel consumption for stationary motors, is from 0 8 to 1 kg. of air-dried wood, and from 0.4 to 0.5 kg. of wood charcoal per HP hour. 2.5 kg. of wood or 1.2-1.5 kg. of wood charcoal are calculated as corresponding to 1 litre of motor spirit for locomotive motors utilised for transport.

The lower efficiency of suction gas motors in comparison with petrol motors can be partly compensated, as in the case of alcohol motors, by a stronger compression and advancing the spark. Instead of altering petrol motors, it is more convenient to construct special motors running on gas which would besides greatly resemble alcohol motors. Results obtained up-to-date appear to indicate that the increase of compression to 9 : 1 would also be advantageous for suction gas motors.

Taking into account the accessory expenses required for the gas producer and for upkeep, the use of wood as compared with the use of motor spirit makes possible an economy of from 50 to 60 per cent. It would be incorrect to compare only the cost prices of the two fuels.

The suction-gas motor has requirements similar to those of an alcohol motor. If it should be necessary to work the motor with either solid or liquid fuels, it would be undoubtedly better to construct special motors, suitable for the use either of gas or alcohol, rather than to adapt petrol motors for use with suction gas equipment.

The numerous experiments on suction-gas motors have led to the conclusion that except under certain conditions, the gas cannot advantageously be utilised for lorries owing to the space required, inferior efficiency of these motors and the upkeep and attention necessary for the combustion apparatus. Investigations should be directed chiefly to the construction fo small gas generators for stationary or locomotive motors.

H. J. HOPFEN.

PRESENT STATE OF THE DAIRYING INDUSTRY IN THE VARIOUS COUNTRIES: (8) BELGIUM *

In Belgium, the dairying industry is one of the most important branches of agriculture. The entire value of milk products reaching the market amounts to 2,423,000,000 francs. The Belgian dairying industry has not escaped the disastrous consequences of the depression, but other agricultural industries have been more seriously affected. It is fortunate that this country has been able to surmount these difficulties. Considerable quantities of fats (butter and margarine) and cheeses are imported. There is no actual overproduction of milk, but rather an absence of equilibrium between the home production and the importations of milk products.

During the last few years, great progress has been made in increasing the consumption of fluid milk and in improving butter making. However, much still remains to be done in raising the standard of cheese making so as to compare favourably with foreign competition.

The problem of the industrialisation of milk production is rendered all the more difficult to solve in that this industry is the chief means of livelihood of an entire class of small producers.

I. — DAIRYING KINDS AND BREEDS.

Belgium suffered considerably from the consequence of the world war, during which the greater part of her live stock was destroyed. However, Belgium received from Germany, as war reparations, a large number of cattle of selected breeds for the reconstruction of her stock-breeding and dairying industry.

---

* The previous articles of this series appeared in this *Bulletin*: in 1934 - No. 1 November (France) - in 1935 - No. 2 April (Italy), No. 3 June (Hungary), No. 4 July (Czechoslovakia), No. 5 August (Austria) - in 1936 - No. 6 March (Switzerland), No. 7 May (Denmark).

Before the war, the total number of cows attained about 940,000 head; in 1919, there were 618,000 head, and from 1932 the pre-war total has been exceeded. The number of dairying cows tends, as is shown by the following table, to increase since the depression.

Total of dairying cows in Belgium, from 1931 to 1935.

1931	1932	1933	1934	1935
930,930	941,814	946,515	963,030	970,225

In respect of milk production, M. HUYGE estimates it, on a basis of an individual yield of 2,700 litres per head, at about 2,600,000,000 litres, having an average fat content of 3.2 %, while the Stock-Breeding Department, on the basis of an individual yield of 3,200 litres, calculates it as being over 3,000,000,000 litres.

I. — CATTLE.

According to the official data supplied by the Belgian Ministry of Agriculture (Publications of the Stock-breeding Department), the principal breeds in Belgium are: the red Flemish breed, the red-spotted breed of eastern Flanders, the Campinoise cow, the blue breed, and the country cow of Hervé.

The *red Flemish breed* is large, long and heavily built. The ideal coat is of a uniform red shade, preferably of a dark colour (dark brown not admissible). A little white is allowed on the forehead, knees, on the lower part of the chest, the paunch, the legs and the tip of the tail, even on the sides of the paunch. The weight is from 650-750 kg.

The *red-spotted cow of eastern Flanders* represents the type suitable for the production of milk and meat. The weight of the cow varies from 600 to 700 kg.

The *Campinoise cow* is decidedly of the good milker type; the coat is of a red-spotted colour, although the shade may vary from light to dark. Preference is given to a brick-red colour. The size is small and the weight fluctuates between 400 and 500 kg.

The ideal colour of the coat of the *blue breed cow* is a uniform blue. However, white, black. black-pied or blue-spotted coats are not excluded. The weight varies between 600 and 800 kg, according to the fertility of the district.

The *Hervé cow* has a black-spotted coat preferably with black predominating. The conformation of the Hervé cow is very characteristic of the milker type. The weight varies, when in a well-nourished condition, between 500 and 600 kg.

With regard to milk production, the optimum production for the Flemish red breed, for a lactation period of 300 days, is taken as being theoretically 200 kg. of butter, or 5,000 litres of milk having a 4 per cent. fat content. The optimum production of the red-spotted breed of eastern Flanders is 200 kg. of butter or 5,400 litres of milk with a 3.7 per cent. fat content; a similar production is given by the Campinoise, the blue breed, and the Hervé cows.

2. — SHEEP.

Sheep breeding is no longer of any importance in Belgium since the disappearance of the communal pasturages and of the grasslands. In 1846, Belgium possessed 662,508; in 1880, 365,400; in 1910, 185,373; and 187,531 in 1929.

3. — GOATS.

In Belgium in 1846, there were: 110,060 goats, he goats and kids; in 1880, 248,755; in 1910, 217,828; in 1929, 157,963.

In recent years, numerous associations of goat owners have been formed, chiefly in western Flanders. These societies organise competitions, exhibitions, syndicates, etc., which have contributed considerably to the development of goat breeding.

After many vain attempts to introduce foreign breeds, breeders are now raising the « Hertegeit » (stag goat), an indigenous sub-breed, without horns and of a buff colour.

II. — FLUID MILK.

The total milk production for the year 1935 has been estimated at 30,076,975 hectolitres. This milk production is, in general, directed to the following purposes:

Butter making	60 %
Human consumption	21 %
Feeding of young cattle and pigs	12 %
Special productions: milk powder, condensed milk, cream for consumption, special products . . .	5 %
Cheese making	2 %

If an examination is made of the statistics relating to the consumption of fluid milk per year and per capita in the various countries, it is found that Belgium, with 80 litres of milk, is among those countries having a very low milk consumption in comparison with other countries such as Switzerland (380 litres).

This low consumption shows the distrust of many consumers with whom milk is a food to be regarded with suspicion, as frequently subjected to unhygienic and dishonest manipulation, not easily detected.

For increasing milk production, a well-carried out propaganda is essential, as much for the consumer as for the producer; such a propaganda has been recently carried out by the " Milk Week ". There has also been a movement for encouraging milk consumption in the schools, as well as the consumption of fermented milk, especially Yoghourt.

With the object of preventing all adulterations and fraudulent practices, milk production and the sale of milk have been submitted to an official control dealing not only with adulterations and fraudulent practices, but also with the spread of epidemics. Besides this State control, there is still another special control in operation in the more important cities.

In respect of the delivery of milk, in the small towns and industrial villages, very numerous in Belgium, the consumers buy their milk direct from the producer. In the medium-sized towns, of 5,000 to 50,000 inhabitants, the farmers supply the milk direct to the consumers while in the larger towns, delivery is made partly by dairies direct to the consumers and partly through the medium of a retailer. The retailer sells milk coming from the large outlying dairies which receive it regularly from the farmers. In the collecting stations, the milk is weighed, examined and delivered in cans to the cities.

A considerable proportion of the milk for sale in the large towns is pasteurised and put into bottles.

In recent years, great progress has been made in the technical installation of dairies. The apparatus is obtained practically exclusively from abroad, home manufacture being limited to cream separators.

Most of the dairies are on a co-operative basis.

III. — BUTTER PRODUCTION.

It may be estimated that the annual production of butter in Belgium fluctuates between 60 and 65 million kg.: 3/5 being farm butter and only 2/5 dairy butter. Butter in casks of national production is practically unknown. The dairies, like the farmers, sell the butter in oiled paper, generally in blocks of 250 gm., and only occasionally in 5 kg. quantities. Only when butter has to be shipped and despatched some distance away are casks containing 30-50 kg. utilised.

There are about 700 dairies, mostly on a small scale, which are engaged in butter making and among these according to E. PIRAUX, 180 are well equipped, 120 passably, and 500 have insufficient equipment.

Most of the Belgian dairies, being hastily equipped and badly organised, produce a butter similar to that which can be made at the farm, that is to say, without pasteurisation of the cream or the use of pure lactic ferments.

If the Belgian dairying industry is to be improved, butter making on the farm or in small dairies must be replaced by that of large central establishments, which admit of modern technical methods of operation. In other words, the industrialisation of butter making is necessary.

With regard to the importation of butter into Belgium, a considerable decrease has taken place, but, unfortunately, this is not due principally to a parallel increase in the home production, but, firstly to a marked advance in the consumption of margarine, and secondly to a slight increase in home production. This movement is clearly seen on comparing the two following tables:

Importation of butter into Belgium from 1931 to 1935 (in kg.).

1931	1932	1933	1934	1935
18,851,000	21,218,000	12,406,000	9,357,000	6,037,000

Consumption of margarine in Belgium from 1931 to 1935 (in kg.).

1931	1932	1933	1934	1935
11,611,500	27,204,000	34,289,000	37,987,000	45,556,000

The dairying industry, consequently, is seriously menaced by the steady increase in the consumption of margarine. In Belgium, where margarine is consumed more from necessity than from choice, the application of a tax, or any other measure, would undoubtedly reduce this consumption, without, however, bringing about any increase in that of butter, that is to say, leaving the problem still unsolved.

In respect of *artificial cream*, which has given rise to numerous adulterations, legislative measures for its definite suppression are now in force.

IV. — CHEESE PRODUCTION.

Cheese making in Belgium is not greatly developed. The largest cheese factories produce from 6 to 7 million kg. per annum. Brie, Camembert, Port-Salut and Pont-l'Eveque are the principal cheeses made. Also considerable quantities of cream cheese are met with in commerce. Production by the farmer is represented by about 15 million kg. per year.

As types of the principal Belgian cheeses, in addition to the white cheeses prepared from " unsold " milk, Brussels, Limburg and Huy cheeses are manufactured.

1) *Brussels cheese,* or "Ettekeis" (hard cheese), is generally prepared from skimmed milk, and is characterised by an advanced ripening, putrefaction very readily setting in with very strong odour and taste. Annual production attains 5-6 million kg.

2) *Limburger cheese,* or *Hervé cheese,* is prepared in the districts of Limburg and Hervé, generally with whole milk (for exportation), but also with skim-milk, or a mixture of the two. A defect often met with in the making of this cheese is its friability. The principal cause of this defect is the exceptionally long period of coagulation (from 1 to 1 ½ hours). Hervé cheese is made chiefly at the farms, but also in two or three industrial cheese establishments. The annual production may be estimated at 5 million kg. Some writers distinguish between Hervé and Limburger cheeses, because of a difference in taste and odour. Another cheese of the Limburger type is the *Royal Brabant,* which is a small cheese prepared with whole milk.

3) *Huy cheese,* or " cassette ', or " fromage de panier ", is prepared at some farms in the province of Liège and Namur, sometimes with whole milk, but mainly with skimmed milk. This production is of no great interest.

As the milk destined for cheese factories is subjected only to very slight inspection in comparison with that of milk intended for the butter factories cheese making is not greatly encouraged under these conditions. Cheese importations amount to about 20 million kg. per annum, of which about 4/5 come from Holland.

Importations of cheeses into Belgium from 1929 to 1934 (in kg.).

1929	1930	1931	1932	1933	1934
21,072,000	23,181,000	22,498,000	20,711.000	21,962,000	21,690,000

With regard to cheese making, it might be practicable to secure, not only a considerable increase in production with a view to replacing imported cheese, but also a great improvement in the quality.

V. — OTHER DERIVATIVES.

As regards other milk products, the most important are *preserved milk* derivatives. In Belgium, there are a certain number of dairying establishments which manufacture *milk powder, condensed milk* and *evaporated milk,* not only from whole milk, but also from skimmed milk or mixtures of the two.

Casein production is of little importance, as is also the preparation of *skim-milk* and *dried butter milk.*

The preparation of ice cream in the Belgian dairies is quite unknown.

E. GASSER.

Publications consulted:—

MARCAS, L. and HUYGE, C., Le fromage de Bruxelles. — *Revue générale du Lait,* Lierre (Belgique), 1910.
MINISTÈRE DE L'AGRICULTURE, 1ère Direction générale, Publication du Service de l'Elevage, N. 10, L'appréciation de la vache à deux fins, Bruxelles, 1927.
P., Belgiens Milchwirtschaft auf neuen Wegen. — *Molkerei-Zeitung,* Hildesheim 1934, Nr. 34, p. 906-7.
PIRAUX, E., La situation de l'industrie laitière en Belgique. — *Annales de Gembloux,* Auderghem, 1936, année 42, 4ème livraison, p. 141-57.
WEIGMANN, H., *Handbuch der Praktischen Käserei,* Berlin 1933, p. 265-68.
WINKLER, W., GRIMMER W., und WEIGMANN H., *Handbuch der Milchwirtschaft,* Erster Band, Zweiter Teil, Wien 1930, p. 7, 17, 23, 34, 37.

DIPLOMATIC CONFERENCE FOR THE CONCLUSION OF AN INTERNATIONAL CONVENTION FOR THE STANDARDIZATION OF HERDBOOKS

An important Diplomatic Conference was held at the International Institute of Agriculture, Rome, from 12 to 14 October, 1936, the object of the Conference being to conclude an International Convention for the standardization of Herdbooks, on the basis of the draft Convention prepared by a meeting of experts convened at the Institute, held from 18 to 21 February, 1935. The conclusions adopted at this meeting have already been published in the *Monthly Bulletin of Agricultural Science and Practice,* No. 4, 1935 (pp. 211-216).

Representatives of the following countries took part in the Conference: Germany — Brazil — Bulgaria — Denmark — The United States of America — France — Morocco — Tunis — Guatemala— Hungary — Italy — Latvia — Lithuania — Nicaragua — Paraguay — The Netherlands — Poland — Switzerland — Czechoslovakia

— Yugoslavia. Chile, Rumania, Turkey, as also the International Commission of Agriculture at Paris, sent observers to the meeting.

The Delegations, after having presented their credentials, which were recognized as in order, elected as President, M. Alfred MASSÉ, ex-Minister, representative of France, as Vice-President, Mr. Clyde MARQUIS, United States Delegate at the International Institute of Agriculture, and as Reporter, Prof. Bartolo MAIMONE (Italy).

Several Delegations presented suggestions for the amendment and improvement of the draft Convention drawn up at the meeting of Experts. Of special importance are the amendments relating to articles 1-2-5-11 of the draft Convention.

Article 1, as now completely amended, has been formulated to meet certain special conditions to be found in the different countries.

In article 2, the words " after inspection ", which occur in the draft have been cancelled, so that inspection shall no longer be made compulsory for the herdbooks of the adhering countries. On the other hand, in order to take into account the necessity of an inspection of the animals intended for export, the Convention provides, in Article 5, also amended, that, in the case of Herdbooks which do not adopt the practice of inspection, the registered animals must be submitted to a competent authority, which shall be responsible for deciding whether the particular animals correspond to the type, characteristics and qualities of the breed.

Article 11 has been strengthened on the suggestion of the Latvian Delegation, and now prescribes very definite reports as to the milk yield records of the animals registered in the Herdbooks.

It has been generally recognized that the Convention which has been drawn up, cannot yet be considered as complete, owing to the numerous compromises which it has been necessary to adopt in order to render it acceptable to the majority of the countries. A modification of the Convention is therefore to be expected, and the International Institute of Agriculture has been requested, in the Protocol of Signature appended to the Convention, to organize in the near future, a meeting of Experts in order to explain details as to the practical application of the measures prescribed by the Convention and to present to the International Institute of Agriculture draft recommendations for submission to the Governments. The Institute is requested at the same time to proceed, on the expiry of the fifth year after the signature of the present Convention, to make enquiry among the Governments regarding the advisability of convening a meeting of Experts, with the object of proposing such amendments to the Convention as have been shown in practice to be necessary, or required for the completion of its provisions.

For the benefit of English readers a full text of the Convention in the English language is here given.

International Convention for the standardization of the keeping and operating of Herdbooks.

(Rome, October 14, 1936) *

The Chancellor of the German Reich; the President of the Republic of the United States of Brazil; His Majesty the King of the Bulgarians; His Majesty the King of Denmark; the President of the United States of North America; the President of the French Republic; His Majesty the Sultan of Morocco; His Highness the Bey of Tunis;

---

* Only the French text is official. The English translation has been prepared by a Committee of English-speaking Delegates and of members of the Staff of the Institute.

the President of the Republic of Guatemala; His Serene Highness the Regent of the Kingdom of Hungary; His Majesty the King of Italy, Emperor of Ethiopia; the President of the Republic of Latvia; the President of the Republic of Lithuania, the President of the Republic of Nicaragua; the President of the Republic of Paraguay; Her Majesty the Queen of the Netherlands; the President of the Republic of Poland; the Federal Council of the Swiss Confederation; the President of the Republic of Czechoslovakia; His Majesty the King of Yugoslavia;

Considering the primary importance of Herdbooks for stock-breeding, alike from the point of view of breeding and from that of international transactions,

Considering in particular the need generally recognized that there should be standardized on an international basis· (*a*) The general form of the Herdbooks; (*b*) the methods adopted for the purpose of definitely establishing the identification of the animals registered; (*c*) the methods for recording the yields, and

Considering also that it is of the first importance to decide on the information which is to be compulsorily included in the pedigree and yield certificates required for international trade,

Have decided to conclude a Convention for this purpose

Consequently they have designated and empowered their plenipotentiaries —

THE CHANCELLOR OF THE GERMAN REICH

Mr. *Wilhelm Weber*, Councillor of the Ministry for Supplies and Agriculture of the Reich and of Prussia

THE PRESIDENT OF THE REPUBLIC OF THE UNITED STATES OF BRAZIL

Mr *Luiz Simoes Lopes*, Agricultural Engineer, Delegate to the Permanent Committee of the International Institute of Agriculture

HIS MAJESTY THE KING OF THE BULGARIANS

His Excellency Mr *Svétoslav Polménoff*, Envoy Extraordinary and Minister Plenipotentiary to his Majesty the King of Italy, Delegate to the Permanent Committee of the International Institute of Agriculture

HIS MAJESTY THE KING OF DENMARK·

Mr. *Hubert Wichfeld*, Councillor of the Royal Legation at Rome

THE PRESIDENT OF THE UNITED STATES OF NORTH AMERICA

Mr. *John Clyde Marquis*, Delegate to the Permanent Committee of the International Institute of Agriculture.

THE PRESIDENT OF THE FRENCH REPUBLIC

Mr. *Alfred Massé*, Former Minister,

Mr. *Michel Augé-Laribé*, Delegate to the Permanent Committee of the International Institute of Agriculture.

HIS MAJESTY THE SULTAN OF MOROCCO.

Mr. *Alfred Massé*, as above;

Mr. *Michel Augé-Laribé*, as above.

HIS HIGHNESS THE BEY OF TUNIS·

Mr. *Alfred Massé*, as above;

Mr. *Michel Augé-Laribé*, as above.

The President of the Republic of Guatemala:

General *Victor Durán Mollinedo*, Chargé d'Affaires at Rome.

His Serene Highness the Regent of the Kindgom of Hungary:

His Excellency Mr. *Rodolphe de Márffy-Mantuano*, Formerly Envoy Extraordinary and Minister Plenipotentiary, Delegate to the Permanent Committee of the International Institute of Agriculture.

His Majesty the King of Italy, Emperor of Ethiopia:

Professor *Giacomo Acerbo, Baron de l'Aterno*, Deputy, Delegate to the Permanent Committee of the International Institute of Agriculture, President of the Permanent Committee of the International Institute of Agriculture.

Professor *Vittorino Vezzani*, Deputy, Vice-President of the Corporation of Animal Husbandry, Director of the Institute for Animal Husbandry and the Dairy Industry, Piedmont

The President of the Republic of Latvia

His Excellency Mr. *Arnold Spekke*, Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of Italy, Delegate to the Permanent Committee of the International Institute of Agriculture

The President of the Republic of Lithuania:

His Excellency Mr. *Voldemaras Carneckis*, Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of Italy, Delegate to the Permanent Committee of the International Institute of Agriculture

The President of the Republic of Nicaragua

Count *Maggiorino Capello*, Envoy Extraordinary and Minister Plenipotentiary to the Holy See.

The President of the Republic of Paraguay

Dr. *Alessandro Bocca*, Advocate, Delegate to the Permanent Committee of the International Institute of Agriculture

Her Majesty the Queen of the Netherlands.

Dr. *J. J. L. van Rijn*, Delegate to the Permanent Committee of the International Institute of Agriculture, Vice-President of the Permanent Committee of the International Institute of Agriculture

The President of the Republic of Poland

Mr. *Boleslaw Mikulski*, Delegate to the Permanent Committee of the International Institute of Agriculture.

The Federal Council of the Swiss Confederation:

His Excellency Mr. *Paul Ruegger*, Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of Italy, Delegate to the Permanent Committee of the International Institute of Agriculture.

The President of the Republic of Czechoslovakia:

His Excellency Dr. *Frantisek Chvalkovsky*, Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of Italy, Delegate to the Permanent Committee of the International Institute of Agriculture.

HIS MAJESTY THE KING OF YUGOSLAVIA:

His Excellency Mr. *Jovan Doutchich*, Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of Italy.

The above plenipotentiaries, fully authorized for the purpose, having met in Rome at the headquarters of the International Institute of Agriculture and on its initiative, and having presented their credentials, which have been recognized as in order, have agreed as follows·—

Article 1.

In principle, there shall be in each State one Herdbook only for a single breed.

Taking into account, however, special conditions, there may be allowed several Herdbooks. In the case where several Herdbooks are already in existence, the Government concerned shall make this known to the International Institute of Agriculture, in the case of a State signatory of the present Convention, within six months from the date of deposit of the deed of ratification, and for the States subsequently adhering to the Convention, from the date of their adherence

In the case where, in addition to the Herdbook or the Herdbooks already in existence for a single breed, there is to be instituted a new Herdbook, the above period of notification shall be six months from the institution of the new Herdbook.

In the case of the single Herdbook for breeds having different breed and aptitude characteristics, as well as for breeds distributed over an especially large area, which are therefore subject to different conditions of climate, habitat or nutrition, likely to produce differences in conformation, there may be opened in the same Herdbook more than one Section corresponding in each case to a type of breed or to a region inhabited by the said breed. The institution of more than one Herdbook and the opening of particular Sections within the same Herdbook, shall be done only under the authority and under the supervision of the special body mentioned under paragraph (*D*) of the Protocol of Signature attached to the present Convention for the organization of the National Herdbook, and due notice shall be given to the International Institute of Agriculture.

Article 2.

All Herdbooks shall be arranged on identical lines and shall contain —

(*a*) Register of births,
(*b*) Final Register of males;
(*c*) Final Register. of females.

In connection with the Registers (*b*) and (*c*), there shall be entered all the information relating to each animal; results according to production records, prizes won by the animal or by its ancestors or by its offspring.

Article 3.

Besides the three Registers provided for in Article 2 which shall be compulsory, the authorities in charge of the Herdbooks may establish an Advanced Register (Livre d'Or) or a Register of Merit (Livre d'Elite), in which shall be entered those animals whose officially recorded yield has reached, in competitions as well as in the shed at home, a previously determined standard, fixed at a level considerably above the average. As far as sires are concerned, the entry in the Advanced Register or Register of Merit shall be made on the basis of the yields of their daughters, and if possible their sisters, determined in the same manner as indicated above for the registration of females.

There shall be mentioned not only the number of controlled female offspring, but also the number of offspring, male and female, entered in the Registers (*b*) and (*c*).

Article 4.

The opening and closing of Herdbooks being subject in each country to special and particular considerations, the regulations for initial entry shall become more severe and rigorous year by year as the date of the constitution of the Herdbook becomes more remote.

Article 5.

Until inspection shall have become general and extended to all countries and to all breeds, animals entered on the ground of their ancestry, whether in the case of open or of closed Herdbooks, and intended for export, must be presented to a competent authority to be appointed by each country This authority shall be responsible for deciding whether these animals correspond to the type, characteristics and qualities of the breed.

For the Herdbooks for which inspection is already practised, the fact that an animal has been approved after inspection is sufficient

Article 6.

The animals to be entered on the Register of births shall be marked by such means as will ensure easy and certain identification (*e. g.*, tatooing, ear-punching, nose or lip-prints, horn branding or any other new method recognized to be effective for the purpose).

The above enumeration of methods of marking animals is in no way an exclusive one. Any effective means may be adopted

All other indications serving to identify the animal must be supplied in addition (*e. g.*, a sketch of the outline of the markings in the case of spotted breeds).

Article 7.

The Herdbook authorities may issue certificates or extracts from the individual sheets for each animal entered in the Herdbook. The individual certificates, so as to be easily comparable, shall contain the information as indicated on the specimen sheet, attached to the present Convention.

Article 8.

Each certificate shall indicate the Register (*a*), (*b*), or (*c*), from which it has been taken.

Article 9.

The certificates accompanying the animal must contain all particulars shown on that animal's individual sheet relating to the pedigree [ancestry and offspring in Registers (*b*) and (*c*)], to the yields and in general to all information required by the present Convention and shown in detail on the specimen sheet attached.

Article 10.

The data shown by the certificate must be certified as correct by the authority in charge of the Herdbooks. The same holds true for all information relating to subsequent yield records which shall be entered later.

Article 11.

The recording of yields shall be organized by the Herdbook Association or by other special institutions working in full agreement with these associations, in accordance with principles and methods which shall be as uniform as possible. The yield recording shall be effected by competent and independent officers under the authority and guarantee of the Herdbook Associations, responsible for entering the records on the individual sheets. In each case, for the animals submitted to yield recording, the information given on the individual sheets shall indicate, in addition to the milk production and the fat content of the milk, the intervals between the recorder's visits, the duration of the recording beginning from the sixth day after calving, the number of previous calvings and the date of the calving following the last recording period.

Article 12

The Signatory States agree to recognize as registered breeding cattle only those recorded in the Herdbooks which conform to the rules laid down in this Convention. The Signatory States are prepared to ensure the proper keeping of the Herdbooks and the systematic working of the organizations responsible for keeping the Herdbooks and for issuing the certificates

Article 13.

The Signatory States undertake to notify the International Institute of Agriculture as to the bodies specially qualified officially to endorse, for use in international commerce, each certificate issued by a Herdbook organization

Article 14.

A maximum period of three years is granted to the Governments so that the Institutions in charge of Herdbooks may comply with the provisions of the present Convention.

This period shall be reckoned, for each Signatory State, from the date of deposit of the deed of ratification, and, for the States subsequently adhering to the Convention, from the date of their adherence.

Article 15

In case of difference of opinion as to the interpretation of the clauses of the present Convention, or in case of practical difficulties in the application thereof, the States interested in the dispute may, in agreement with each other, request the International Institute of Agriculture to try to find a way of conciliation.

For this purpose, a Technical Committee composed of three experts, each of the the two States interested appointing its own expert and the International Institute of Agriculture selecting the third - shall investigate the matter in dispute. This Committee shall present a report and the International Institute of Agriculture shall notify each of the countries concerned, freedom of subsequent action being left to the Governments. The Governments concerned agree to bear in common the expenses connected with the investigation entrusted to the experts

Article 16.

All notifications arising out of the present Convention shall be addressed by the adhering Governments to the Government which is the depositary of the Convention and to the International Institute of Agriculture, and both these bodies shall inform the Signatory States.

Article 17.

The present Convention shall be ratified as soon as possible by the contracting Countries and the ratifications shall be deposited with the Italian Government.

Notice of each ratification shall be given by the Italian Government to the contracting Countries as well as to the International Institute of Agriculture.

Article 18.

Each contracting Country shall have power to declare at the time of the deposit of its ratification that the coming into force of the present Convention is subordinated, so far as the said Country is concerned, to the giving effect to the Convention on the part of certain other Countries indicated by name.

The present Convention shall come into force as soon as it shall have been ratified by at least five sovereign contracting Countries, unconditionally or under conditions which have been fulfilled.

In this case the coming into force shall begin six months after the date of the deposit of the fifth ratification.

For all other contracting Countries the Convention shall come into force, in each case, within six months after the deposit of the ratification.

Article 19.

The Countries which are not contracting parties to the present Convention shall be admitted to adhere thereto upon their request.

The adherence shall be notified through diplomatic channels to the Italian Government and by the latter to the contracting Countries, as also to the International Institute of Agriculture.

In the text of the present Convention the words *Signatory Countries* indicate the whole of the contracting Countries and of the later adhering Countries.

Article 20.

Any Signatory Country may, at any time, notify the Italian Government that the present Convention is applicable to all or to a part of its Colonies, Protectorates, Mandated Territories, Territories under its sovereignty or its authority, or all Territories under its suzerainty. The Convention shall apply to all the territories indicated in the notification. Failing this notification the Convention shall not apply to these territories.

The Italian Government shall inform all other Signatory Countries and the International Institute of Agriculture of this notification.

Article 21.

Any Signatory Country desiring to denounce the present Convention, whether for the whole of its territories, or for the whole or a part of its Colonies, Protectorates, Possessions or Territories as under Article 20, shall so notify the Italian Government, which shall inform immediately the other adhering States and the International Institute of Agriculture, indicating the date on which such declaration of withdrawal from the Convention has been received.

Such declaration shall take effect only in respect of the Country which has so notified the Italian Government, or of the Colonies, Protectorates, Possessions or

Territories indicated in the declaration, and that not until one year after the notification shall have been received by the Italian Government.

IN FAITH WHEREOF the respective plenipotentiaries have signed the present Convention.

MADE IN ROME, October fourteenth one thousand nine hundred and thirty-six, in a single original, which shall be deposited in the Archives of the Italian Foreign Office.

One copy, certified correct, shall be sent through diplomatic channels by the Italian Foreign Office to each Signatory State of the present Convention.

PROTOCOL OF SIGNATURE.

At the moment of signing the present Convention, the undersigned Plenipotentiaries make the following declarations:—

(*A*) While considering that an international organization of Stud, Flock and Herd books for horses, sheep and pigs would be desirable, but recognizing that for these three classes of live-stock there are special questions and problems which are not yet adequately defined, the undersigned resolve to limit for the time being the application of the present Convention to cattle, leaving the adhering Governments free to propose at a later date, if found advisable, to extend to other classes of live stock regulations on lines similar to those proposed for cattle.

(*B*) They invite furthermore the International Institute of Agriculture to organize in the near future a meeting of experts responsible for the keeping of the Herdbooks of the Signatory Countries of the present Convention, in order to make clear the details of the application of the measures laid down by the Convention, including the standardization of methods and procedures of yield recording, and to present to the International Institute of Agriculture draft recommendations to be proposed to the Governments.

(*C*) The Signatory Governments request the International Institute of Agriculture to proceed, at the expiration of the fifth year following the signature of the present Convention, to make an inquiry among the Governments bound by the Convention as to the advisability of convening a meeting of Experts nominated by themselves, with a view to submitting proposals to the Governments concerned, for the introduction into the Convention of such amendments as may have in practice appeared necessary, or for the supplementing of its provisions.

(*D*) It is desirable that in each State a special body be made responsible for laying down the general principles to be followed in the keeping of Herdbooks, and for the supervision of the regular operating of these books in accordance with the principles laid down by the present Convention.

It is desirable that on this body, in addition to the Ministries concerned, breeders and animal husbandry experts be also represented.

The States which have instituted such an organization shall inform the International Institute of Agriculture, so that the latter may advise the countries adhering to the Convention.

(*E*) The wording of the certificate appended hereto contains only a minimum of the information required. States shall have power to add such indications as are considered advisable. As regards the form of the certificates, the appended model form is not compulsory, but it is desirable that it should be followed.

APPENDIX A.

HERDBOOK CERTIFICATE — EXTRACT FROM THE REGISTER
(A, B or C)

Issued on .... 19....

Issued by .... Locality .... Country ....
(adhering to the International Herdbook Convention).

Name of animal .... Sex .... Date of birth................

Breed .... Herdbook No .... Date of Entry ....

Breeder .... Owner .... Marks of identification ....

Prices and Awards ....

Ancestry			
Sire		Dam	
....		....	
Grandsire	Granddam	Grandsire	Granddam
....	....	....	.....

Offspring as indicated on reverse side			
Sons	Daughters	Grandsons	Grand-daughters
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....

Signature and stamp of the office autorized to confirm the correctness of the certificate

....

Signature of the Herdbook Officer in charge

....

Yield of animal entered under the No

Calving		Actual length of recording, in days (*)	Recorded yields			Signature of the Herdbook officer in charge
No	Date		Milk lb	Fat lb	Fat percentage	
1						
2						
3						
4						
5						
6						
..						
...						
..						

(*) From the 6th day after calving
Intervals between recorder's visits . . days

(On the back of the Herdbook Certificate)

Yield of females of the ancestry									Yields of the daughters of the sire for which information has been requested by the owner:							
Degree of relation ship	Herdbook No.	Calving		Actual length of recording in days (*)	Recorded Yields			Signature of the Herdbook officer in charge	Herdbook No.	Calving		Actual length of recording in days (*)	Recorded Yields			Signature of the Herdbook officer in charge
		No.	Date		Milk lb.	Fat lb.	Fat percentage			No.	Date		Milk lb	Fat lb	Fat percentage	
		1 2 3								1 2 3						
		1 2 3								1 2 3						
		1 2 3								1 2 3						
		1 2 3								1 2 3						
		1 2 3								1 2 3						

(*) From the 6th day after calving.
Intervals between recorder's visits: . . . days.

MISCELLANEOUS INFORMATION

Tropical and subtropical crops.

MEASURES ADOPTED FOR THE DEVELOPMENT OF COTTON PRODUCTION IN CHINA. — The Provincial Association for the development of cotton at Hopei has established a five-year plan for the expansion of cotton production in the province. According to this plan, an Experiment Station shall be established at Peiping. The Association shall also take charge of the three secondary stations at Chunliagchen, about 12 miles east of Tientsin; at Tungchow, 15 miles to the east of Peiping; and at Tingshsien, an educational centre situated on the railway from Peiping to Hankow, in the western part of the province. Another secondary Station will be founded at Tsangchow, on the railway line from Tientsin to Pukow, in the south-east of the province.

It is hoped that in five years the extension in the area under cotton cultivation may be increased from 8 to 18 million *mou*, and that the annual cotton production may be raised from 3 to 7 million *piculs*. (Based on the Notes on Finance, Commerce and Industry in the *Chinese Economic Journal and Bulletin*).

BOOK NOTICES

ANGELINI, Franco, *Il riso. Tecnica ed economia della coltivazione* 278 pp., XXIV pl. Roma 1936. XIV. Arte della Stampa.

In Italy, the plain of the Po affords favourable conditions for the development of rice cultivation (very slight variations in temperature, presence of marshy lands, possibility of utilising poor soils, abundance of water for irrigation). During recent years, the area occupied by rice cultivation in Italy has varied between a maximum of 146,000 ha. in 1930 and a minimum of 128,000 ha. in 1933.

Unfortunately, after a period of exceptional prosperity from 1924 to 1926, a collapse in prices took place for the first time in 1927. In the two following years (1928 and 1929) price conditions were fairly good. Then, in 1930, the fall in prices recommenced and the crisis has continued up the present day.

The A. has set himself to examine the problem of rice production – as a whole and in its effects - of so much importance for Italy - and has produced a book of high interest. The economic and technical aspects of the problem are studied in the following order: Historical — Present conditions of rice cultivation throughout the world — Present conditions of rice cultivation in Italy — The crisis in rice — Botanical study of the plant — Biology -- Rice crop requirements — Varieties — Crop rotations — Preparation of the soil — Manuring — Sowing — Transplanting — Cultivation processes — Harvesting, threshing, drying and storage — Rice parasites and diseases of rice — Preparation of rice — Carp breeding in rice fields — Malaria and legislation on malaria — Labour in rice cultivation.

Rice cultivation, according to the A., requires considerable capital, well-prepared soils, large quantities of fertiliser, selected seed, an abundance of water and substantial cash credits. The preparation of the soil begins in the winter and the harvest is gathered in September-October. Moreover the manual labour required in rice cultivation represents a good third of the value of the gross return (average gross return 3,500 lires per ha.).

This work, written in a lucid style and excellently printed and displayed, contains also a map in colours, numerous diagrams, and 24 plates showing the various operations required in rice cultivation.

G. R.

GRIST, D. H., *An Outline of Malayan Agriculture.* XII + 377 pp., 2 maps, 86 pl. – Malayan Planting Manual No. 2. Kuala Lumpur, 1936, Department of Agriculture, Straits Settlements and F. M. S.

A handbook of Malayan agriculture was prepared in 1922 by the Department of Agriculture of the Straits Settlements and the Federated Malay States, on the occasion of the Malaya-Borneo Exhibition. A second edition appeared in 1924. The preparation of a third edition came under consideration, and the very marked changes which have taken place during the last ten years in Malayan agriculture have made it necessary for the A. to rewrite his book entirely. The concise text, well-executed maps and illustrations, examples of faultless reproduction, make this one of the most important works on Tropical Agriculture.

Part I gives a general account of Malayan agriculture, of great value for those interested in the geographical, political and social situation of the Peninsula.

The immense importance of plantation crops is shown by figures on the areas covered by the more important commercial crops. Thus, rubber covers 3,282,206 acres, coconut 605,885 acres, oil palm 64,605 acres, pineapple 54,574 acres of a total cultivated area of 4,987,031 acres, while rice, which is the staple diet of the people, only covers an area of 765,250 acres. It is worthy of note that only 37.5 per cent of the population are Malays, the Chinese being 39.6 per cent. and the Hindus 14.2 per cent.; the last two are immigrant races attracted chiefly by the large scale commercial crops.

The first part also contains chapters on agricultural development, land tenure, Government agricultural policy, rural co-operation, and the organisation of official and unofficial agricultural services.

The second part, on agricultural practice, is divided into two chapters: methods of cultivation and soil treatment, giving information on subjects of importance to most tropical countries: Labour — Use of implements, all very primitive — Irrigation — Drainage — Cover crops and green manures — Use of fertilisers, etc.

The remainder of the work is confined to special subjects which are divided into four parts: (1) The cultivation of major crops (rubber, coconut, rice, oil palm, pineapple) — (2) Secondary crops (cassava, arecanuts, derris, coffee, tea gambier, tobacco, bananas, miscellaneous fruits and vegetables) — (3) Minor crops (spices, fibre plants, medicinal plants, etc.) — (4) Stock farming.

Each of these chapters, compiled with the assistance of specialists and other authorities, forms a small monograph.

To be noted as useful appendices are the tables on import and export duties, a bibliography indicating all the publications of the Department of Agriculture; a table of the Malayan weights and measures, and a geological and a political map of the peninsula.

W. B.

MACMILLAN, A. F., *Tropical planting and gardening with special reference to Ceylon.* 4th edition, 560 pp., illustrated, 3 coloured plates; London, Macmillan & Co.

The 4th edition of] this well-known work will undoubted be welcomed by all interested in horticulture or in tropical agriculture, and especially by those, who, as residents in a tropical or subtropical country, wish to embellish their gardens with flowers and ornamental shrubs and trees. The first three editions have afforded guidance to a whole generation of colonists in respect of the wide field of plants cultivated in tropical countries.

The text of this 4th edition is somewhat abridged, the A. has, however, added a certain number of new illustrations, for the most part excellent reproductions of photographs. The chapter on gardening in the arid and sub-desert regions will be greatly appreciated.

The A. has not limited himself to garden flora, but has included also other cultivated plants, such as fruit trees, food crops and commercial crops (fibre, rubber and tannin yielding, aromatic, medicinal, dye plants, etc.). This work is, therefore, a veritable encyclopedia which it is a pleasure to consult. Methods of gardening, disease and pest control, and many other subjects, have been treated in detail.

W. B.

SORNAY, P. de, *Manuel de la canne à sucre à l'usage des chargés de cours et des élèves des grandes écoles coloniales*. 330 pp., 31 engravings. Port-Louis, Ile Maurice. The General Printing and Stationery Co. Ltd , 1936.

This hand-book, written for students of the Colonial Schools and Agricultural Institutes, treats only of sugar cane cultivation and not of sugar production. The A , one time Assistant Director to the Station of Scientific Agriculture at Mauritius, deals chiefly with the cultivation of sugar-cane in Mauritius, but he has also given a detailed study of other sugar-cane growing countries, especially Java. However, he warns the reader against drawing over hasty comparisons, as methods of cultivation vary greatly according to local conditions

The first eight chapters deal entirely with botanical questions: origin of the sugar-cane, description, classification, structure and functions, varieties, creation of varieties, growth. Then follows a chapter on soils and another on climate. Chapters IX to XVII give a clear description of cultivation methods, crop rotations and intercalary crops, manures and chemical fertilisers and irrigation. The two final chapters treat of diseases and pests.

All these subjects are treated in a clear and comprehensive manner This study therefore, will certainly be appreciated not only by the students of the colonial schools, but also by scientific workers at Experiment Stations and by cane planters. But, on the other hand, no information is given on experimental technique, especially on the planning of trial plots, a very important subject, which has been carefully studied at Java and elsewhere

W. B.

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

Agricultural Training.

ROUMANIE. DIRECŢIUNEA AGRICULTURII. Serviciul educaţiei agricole. Activitatea şi situaţia învătămăntului agricol şi casnic de gradul I şi II, şi de popularizare în anii 1927-1932. Bucureşti, Institutul de arte grafice « Oltenia », 1935. 96 p. [The activity and situation of elementary and secondary and popular agricultural Training in Rumania from 1927 to 1932].

Plant protection

Köck, G., J. Löschnig und K. Miestinger. Krankheiten und Schädlinge im Obstbau und ihre Bekämpfung. Wien, Scholle-Verlag, 1936. 165 p. (Scholle-Bücherei. 110. Bändchen).

Lepore, M. Malattie delle piante coltivate. Manualetto pratico. Milano, A. Vallardi, [1936]. 101 p. (Biblioteca popolare di coltura Antonio Vallardi, n. 165)

Miles, H. W. and M. Miles. Insect pests of glasshouse crops Surbiton, Surrey, H. C. Long, 1935. 174, X, p.

Pape, H. Die Praxis der Bekämpfung von Krankheiten und Schädlingen der Zierpflanzen. 2, neubearb. und erweiterte Aufl. Berlin, P. Parey, 1936 VIII, 427 p.

Crops of temperate regions

ANGELINI, F. Il riso. Tecnica ed economia della coltivazione Roma, [« Arte della stampa »], 1936. 278 p.

JAHRBUCH ÜBER NEUERE ERFAHRUNGEN AUF DEM GEBIETE DER WEIDEWIRTSCHAFT UND DES FUTTERBAUES. Hrsg. von F. FALKE und R. GEITH 12 Jahrgang Hannover, M & H. Schaper, 181 p.

Tropical and Subtropical Crops.

DE CAMARGO, R. Visando a qualidade. O problema de qualidade do café e suas soluções technicas. [S l n é], 1936. 141 p. (Cultura cafeeira).

PARODI, R. Relaciones de la agricultura prehispánica con la agricultura argentina actual. Observaciones generales sobre la domesticación de las plantas Buenos Aires, « Coni » 1935 (Extrait des Anales de la Academia nacional de Agronomia Veterinaria, Buenos Aires, v 1, p. [115]-167)

Horticulture.

GUERRINI, G. Piante e colture da giardino Milano A Vallardi, [1936] 171 p (Biblioteca popolare di coltura Antonio Vallardi, n 160).

Forestry.

CHAPMAN, H. H. Professional forestry schools report, giving the comparative status of those institutions that offered instruction in professional forestry for the school year 1934-1935. Washington, Society of American foresters, 1935. XIII, 174 p.

COMITÉ INTERNATIONAL DU BOIS. Annuaire du commerce européen du bois 1932-33 Vienne, Imprimerie Viktor Prochaska, 1934, 72 p.

COMITÉ INTERNATIONAL DU BOIS. Annuaire du commerce mondial du bois 1936 Vienne, Imprimerie Viktor Prochaska, [1936], 128 p.

GOIDANICH, G. La « moria dell'olmo » (Graphium ulmi). Roma, Ramo editoriale degli agricoltori, [1936], 134 p.

Vine Growing

Douarche, L. Le raisin de table dans le monde. Paris, J. Gamber, 1936. 154 p. (Premier Congrès international du raisin et du jus de raisin, de Tunis).

Animal Husbandry.

DUKES, H. H. The physiology of domestic animals, with a chapter on the physico-chemical basis of physiological phenomena, by E. A. HEWITT. A part on reproduction, by G. W. MCNUTT. 3rd. revised ed. Ithaca, Comstock publishing c°, 1935. XIV, 643 p.

Agricultural Industries.

ANNUAIRE DE L'INDUSTRIE LAITIÈRE. Edition 1936. Paris, Boré, Portal & Cie, [1936]. 250 p.

ANNUAIRE SUCRIER 1937. (Campagne 1936-37). 63ème année de publication. Paris, Bureau du Journal des fabricants de sucre, [1936]. 712 p.

DALGETY'S ANNUAL WOOL REVIEW. SEASON 1935-36. Compiled by Dalgety's company Ltd. 38. Year of Issue. [Sydney, J. Andrew, 1936]. 141 p.

FRANÇOIS, MARIE-THÉRÈSE. Rôle de l'Empire Français dans la production et l'industrie des matières premières oléagineuses. Paris, Association colonies-sciences, 1935. XI, 136 p. (Association colonies-sciences. Notice n° 25).

MICHEL, J. L'entente intersyndicale des producteurs de sucre. Paris, Librairie technique et économique, 1936. 208 p.

SAVINI, E. Il «Gorgonzola» e gli altri formaggi erborinati. Roma, «Arte della stampa», 1936 183 p.

SERNAGIOTTO DI CASAVECCHIA, E. La bromatologia Biochimica, fisiologia, chimica ed industria dell'alimentazione. Torino, Rosenberg & Sellier, 1936. XXIX, 957 p.

UNION DES MARCHANDS DE SOIE DE LYON. Statistique de la production de la soie en France et à l'étranger. 65ème année. Récolte de 1935. Lyon, Société anonyme de l'Impr. A. Rey, 1936, 35 p

Various.

SÉGUY, E. Code universel des couleurs Paris, P. Lechevalier, 1936. 2 v. (Encyclopédie pratique du naturaliste, 30)

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN
OF
AGRICULTURAL SCIENCE AND PRACTICE

ORIGINAL ARTICLES

CONTRAST BETWEEN THE INTERNATIONAL TRADE IN AGRICULTURAL MACHINES AND IN THE TECHNICAL PROGRESS MADE IN THEIR MANUFACTURE

This article is a sequel to that which was published in Bulletin No. 8 (August) under the title "Recent progress in the technique of Agricultural machinery", and may be considered as the complement of the previous contribution.

While technical development and mechanisation are becoming increasingly important in the various departments of agriculture, the international trade in farm machinery has not yet recovered from the depression which it underwent in 1931-32. It is true that the principal countries, which are exporters of agricultural machines, have shown since 1933 an increased volume of exports, but the figures — although considerable — still remain far behind those for 1928-30.

The reason is mainly to be found in the artificial economic restrictions which in recent years have affected, to a greater or less degree according to the severity of their application, all kinds of international trade in commodities. It has also thus come about that a number of countries which were formerly large scale importers of agricultural machines, have in the meantime built up their own production and have thus rendered themselves independent of foreign supplies.

As a result, the production of and the internal market in agricultural machinery has experienced in many countries since 1933, very marked progress with only a low development of the export trade.

TABLE I. — *Estimate of production of agricultural machinery, in millions of Swiss gold francs, in the United States, Germany and Canada.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
United States	2 720	3 140	2 630	1 110	600	500	560	1 020
Germany	340	350	280	200	130	170	200	280
Canada	210	210	140	60	20	20	30	60

In Table I, an approximate estimate of the production of agricultural machinery in the most important manufacturing countries expressed in Swiss gold francs (at the rate of exchange before October 1935) is given. The course of the figures of the gold value for the different years does not entirely correspond with the figures of volume in the separate countries; these latter are proportionately higher for the more recent years since agricultural machinery in the United States and in Canada has become cheaper, as expressed in gold, in consequence of the devaluation of the currency, while in Germany, the machines for export have shown a decline in price.

TABLE II. — *Percentages of production exported from the United States, Germany and Canada*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
United States	22	23	23	27	9	10	12	10
Germany	27	34	34	29	22	17	14	11
Canada	36	49	38	24	35	28	34	30

Table II supplies data as to the proportion of exports to production for three countries. In 1928-30, in the United States, this proportion varied by about 23 per cent. and in 1931, by 10 per cent. The high percentage in 1931 is exceptional and connected with the high export trade in tractors to Russia during the year. In Germany, in the years 1928-31, some 30 per cent. of the production was intended for export. This proportion has since declined to about 11 per cent. in 1935. In Canada, the percentage of exports in relation to production was approximately 34 per cent. for the years 1928-35. Great Britain was in a position to export some 50 per cent. of its production of agricultural machines.

TABLE III. — *Exports of agricultural machinery and implements by various countries, in millions of Swiss gold francs.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
United States	604.6	729.8	600.2	297.5	54.7	50.9	66.5	98.6
Germany	92.9	120.2	94.7	58.8	29.2	28.2	27.6	30.4
Great Britain	45.8	49.9	56.7	32.1	21.6	25.8	25.8	27.9
Canada	75.3	103.1	53.7	14.6	7.0	5.6	10.2	18.2
Sweden	59.0	46.3	38.7	28.8	13.7	13.1	13.7	15.8
France	21.0	35.8	29.0	16.5	10.1	9.4	8.4	7.2
Austria	26.6	23.2	14.6	8.9	4.3	4.6	6.0	6.2
Denmark	5.2	5.4	4.6	3.0	2.2	2.3	2.6	3.1
Hungary	12.5	14.8	7.3	3.1	1.0	1.7	2.2	2.8
Belgium and Luxemburg	6.5	6.8	6.2	3.4	1.8	2.0	2.1	2.0
U. S. S. R.	...	1.6	2.6	5.5	5.1	2.0	1.6	1.7
Czechoslovakia	16.0	20.1	13.3	7.8	2.9	1.6	1.5	1.5

In quite general terms, it may be stated that the United States concentrates its export trade mainly on the States of North, Central and South America. Great Britain, on the other hand, since 1932 directs its exports increasingly to the British Empire itself. Germany maintains its position as supplier in Europe and also in the Union of South Africa.

In Table III are shown the most important countries which export agricultural machinery; at the head of the list stand the United States with exports to the value of 99 million Swiss gold francs in 1935, Germany comes next, with exports valued at 30 millions and is followed closely by Great Britain and then by Canada and Sweden. France has experienced a considerable set-back in her exports of farm machinery in recent years and the same is true of Czechoslovakia.

TABLE IV. — *Imports of agricultural machinery and implements by various countries, in millions of Swiss gold francs.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Argentina	80.1	135 1	65.8	15 2	6 3	8 4	17 7	36 5
Union of South Africa .	36 0	45 5	23 2	13 3	10 3	8 1	16.2	18.1
Canada	207 5	165 7	114 4	20 2	10 2	8 8	10 1	16 9
Great Britain	20 0	19 3	21 6	24 5	11 7	7 3	9 3	14 3
United States	25 1	49 5	44 3	16 9	5 1	4 4	5 9	14 1
Netherlands	10 7	11 9	13 0	10 6	7.2	7 6	7 6	8 2
Australia	48 6	48 8	40 4	11.8	3 2	4 6	4 5	7.8
Italy	13 5	16 1	18 8	10 2	6 8	9 7	10 8	6 9
New Zealand	11 3	16 1	14 6	3 6	4 4	3 7	4 9	6 5
France	19 2	27 7	32 3	30 1	16 1	13 3	8 9	5 7
Spain	17.8	17 7	12 9	6.5	2 8	3 2	3 9	4.5
Sweden	6 9	5 9	7 1	4 9	1 6	1 5	2 4	3 9
Belgium and Luxemburg .	7 2	10 9	9 1	8 2	4 2	4 7	4 8	3.8
Germany	25 5	20.7	15 7	0 5	6 2	6 2	5 6	3 7
Rumania	...	18 2	8 3	2 8	1 7	2 6	3 6	2 9
Denmark	10 1	11 6	15 3	8 2	2 0	1 5	2 3	2 6
Switzerland	4 9	5 5	5 9	5 4	4 4	2 9	2 7	2 5
Poland	29 1	21 0	10 6	5 1	1 8	1 7	1 8	2 4
Algeria	...	26 7	15 7	9 6	6 3	6 8	5.1	2 2
U S S R.	...	155 2	271 4	200 1	1 9	6 6	0 4	0 4

Among the importing countries shown in Table IV, Argentina occupies the first place with imports valued at 37 million Swiss gold francs in 1935; next follow the Union of South Africa, Canada, Great Britain and the United States. Russia which during the years 1928-31 had the largest import trade, has now become completely independent, since the establishment of national agricultural machinery plants.

In a number of countries the difficulty in marketing agricultural produce has led to a restriction in the use and accordingly in the supply of agricultural machines. This is admittedly true for the States of South-East Europe and especially also for Poland. The steady decline in the German import trade in farm machinery, from a value of 25.5 millions in 1928 to 3.7 millions in 1935, is to be attributed to the efforts made by the German agricultural machinery makers to supply the home market themselves.

Tractors. — More than half of the total exports of the United States in agricultural machinery is accounted for by tractors. In 1935, 8,741 wheel and 3,144 track laying tractors were exported to a value of 57 million Swiss gold francs, while the value of tractor production in the United States amounted to 455 million gold francs. Whereas in the United States, the market was principally for all purposes tractors, an increasing importance attaches to the track laying tractors for export purposes.

In the export of tractors the second place is taken by Great Britain, since the manufacture of FORDSON tractors has been transferred from Ireland to England. The high export figures for Ireland during the years 1929-31 were due to the home production of the FORDSON machines at that time. In 1935, Germany occupied the third place in tractor exportation with machines valued at 5 million gold francs.

The principal countries importing tractors, are Canada, Great Britain, Australia, the Union of South Africa, France and New Zealand (Table V).

TABLE V. — *Exports and imports of tractors in millions of Swiss gold francs*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
United States . .	318 2	389 9	372 6	106 7	26 4	26 0	36 8	57 2
Great Britain .	5 5	5 9	10 6	3 0	0 8	2 7	2 2	6 3
Germany	13 9	16 7	9 9	6 9	5 3	5 0	4 1	5 0
Hungary . . .	0 6	2 3	1 5	1 1	0 4	0 8	0 9	1 2
France	0 6	8 6	4 8	2 7	1 8	1 1	1 1	0 9
Irish Free State .	–	45 4	61 2	11 6	7 0	0 6	0 1	. .
Imports								
Canada	109 5	87 0	55 6	6 8	3 2	2 9	4 2	10 2
Great Britain . . .	5 3	6 3	6 9	8 4	5 8	2 9	3 8	6 0
Australia	27 5	29 2	24 8	5 7	0 4	0 8	1 9	4 6
Union of South Africa .	7 0	13 4	4 1	1 4	0 8	0 8	2 7	3 1
France	5 6	8 0	10 6	12 3	7 7	5 3	3 4	2 4
New Zealand	2 8	5 9	3 7	0 6	0 2	0 3	1 2	2 3
Italy	. . .		3 5	2 5	1 3	2 9	3 5	2 1
United States	—	—	0 1	6 5	0 1	0 1	0 5	2 0
Sweden	1 2	1 9	2 1	1 4	0 7	0 4	0 8	1 8
Spain	2 4	3 2	2 7	1 1	0 6	1 0	1.3	1 3
Netherlands	. . .		1 1	1 1	1 0	0 6	0 8	1 2
Argentina	8 5	16 6	8 9	1 3	0 0	0 1	0.2	0 8
Algeria	. . .	12 8	5 7	3 3	2 4	2 0	2 1	0 7
U S S R	. . .	92 9	190 9	212 4	1 0	6 4	0.3	0 3

Russia, which in 1929-31 imported a very large number of tractors, now constructs its own machines and it is reported that this production is not far short of that of the United States

Ploughs — The chief exporting countries for ploughs are the United States, Germany, Canada and Great Britain with an export value in each case of between 3 to 4 million Swiss francs. There was a considerable import trade in that year to Argentina and to the Union of South Africa (Table VI)

TABLE VI — *Exports and imports of ploughs in millions of Swiss gold francs*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
United States	31 1	42 3	31 6	7 2	1 9	1 7	2 9	3 9
Germany	14 9	19 1	16 2	6 6	2 7	2 8	3 2	3 8
Canada	14 2	25 0	12 3	1 8	1 1	1 0	2 2	3 6
Great Britain	9 7	10 9	7 4	3 4	2 7	3 9	4 0	2 8
Imports								
Argentina	15 8	27 5	18 2	4 6	2 4	3 9	6 3	8 2
Union of South Africa	13 3	14 3	7 0	4 2	3 6	3 1	5 2	5 9

Seed drills — The international trade in seed drills has during recent years lost much of its importance In 1935, in the largest exporting countries, viz , Canada, Germany and the United States, the trade attained a value of hardly more than half a million Swiss francs The same is true for the importing countries among which in 1935 Argentina came first (Table VII)

TABLE VII — *Exports and imports of seed drills in millions of Swiss gold francs*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
Canada	4 9	5 1	2 6	0 4	0 3	0 1	0 4	0 7
Germany		7 3	4 3	1 0	0 3	0 7	0 7	0 6
United States	8 2	13 7	6 7	1 1	0 3	0 2	0 4	0 5
Czecoslovakia	5 1	4 9	2 4	0 8	0 4	0 5	0 4	0 3
Imports								
Argentina	2 4	5 9	4 7	0 5	0 0	0 1	0 2	0 5

Scythes and sickles are mainly exported from Austria and Germany. The trade is limited for the most part to the European countries where small farming is the rule (Table VIII).

TABLE VIII — *Exports and imports of scythes and sickles in millions of Swiss gold francs.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
Austria	11 8	8 5	6 7	5 4	2 8	3 0	4 2	4 4
Germany	6 8	7 3	5 1	3 2	2 6	3 4	2 6	4 3
Imports								
Poland	2 3	1 9	1 3	0 9	0 4	0 4	0 6	1 0
Italy	1 7	1 6	1 5	1 3	0 9	0 9	1 1	0 9
Czechoslovakia	1 3	1 4	1 4	1 0	0 7	0 9	0 8	0 6
Germany	1 2	0 8	0 7	0 5	0 4	0 8	0 6	0 6

Mowers grain harvesters and harvester-threshers — In the export of mowers and grain harvesters, Germany stands in advance of the United States, but has no export trade in harvester-threshers In Europe, the harvester-thresher has not yet taken a hold, but the newer models promise to be successful In the United States, the production of harvester-threshers in 1935 amounted to 3,972 machines to the value of 12 2 million Swiss francs and there were exported 1,262 machines to the value of 5 million Swiss francs Russia also shows a very high output of reaper threshers, although at an earlier date these machines were imported Canada and Australia also now produce to meet the home demand while Argentina still depends on imported machines The import trade in Argentina shows a steady falling off since 1929 in reapers in favour of harvester-threshers, which have lately been purchased in increased numbers In spite of the large importation of reaper threshers into Argentina, there is only a small demand for tractors, since the working cost is too high as compared with the cheaper animal traction

Sweden too shows a high export trade in harvesters, but these are almost exclusively mowers rather than grain harvesters (Table IX)

Threshers — The production in threshers amounted in the United States to 4,607 to the value of 7 million Swiss francs in 1935 Only a small proportion, about half a million, was intended for export, whereas in 1929, exported machines represented 13 millions In Europe, Hungary was in 1935 the largest exporter of threshers for a value of 9 4 million Swiss francs, while to-day Germany stands first followed by Great Britain The Netherlands, Union of South Africa and Italy were the only countries in 1935 to have any considerable import trade in threshers (Table X)

TABLE IX. — *Exports of mowers, harvesters and harvester-threshers in millions of Swiss gold francs (the harvester-threshers are shown in brackets).*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
United States	27.5	26.1	17.6	4.4	1.6	1.3	1.3	2.6
»	(54.2)	(80.5)	(46.8)	(32.3)	(2.5)	(2.0)	(1.9)	(5.0)
Germany	12.1	14.5	14.2	11.2	4.4	3.3	3.6	4.0
Canada	13.1	17.0	11.5	2.5	0.8	0.6	1.2	2.5
»	(8.4)	(18.3)	(2.5)	(0.9)	(0.5)	(0.0)	(1.0)	(1.7)
Sweden	6.8	5.9	4.1	3.9	1.3	1.4	2.1	2.4
Great Britain	3.8	4.6	3.6	2.6	1.7	1.3	1.5	1.7
France	1.6	2.3	3.7	1.7	1.4	1.2	1.1	1.7
Imports.								
Argentina	26.5	39.8	3.5	0.7	0.0	0.1	0.2	0.9
»	(10.2)	(25.5)	(12.3)	(1.7)	(1.1)	(0.0)	(5.3)	(15.0)
Great Britain	3.1	3.0	2.9	3.6	1.7	0.9	1.3	2.3
Union of South Africa . .	2.4	2.1	1.5	1.2	1.3	1.0	2.0	2.1
Denmark	5.6	5.0	7.3	3.9	0.9	0.7	1.3	1.7
Netherlands	1.6	1.9	2.9	2.8	1.6	1.7	1.8	1.7
Italy	3.4	5.3	6.0	3.0	1.9	1.9	2.1	1.6
Spain	7.1	4.9	3.0	1.7	0.2	0.6	0.8	1.5
Canada	11.0	26.6	9.1	0.4	0.5	0.3	0.3	0.7
»	(...)	(...)	(11.5)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)
U. S. S. R.	...	7.4	5.5	0.4	—	—	—	—
»	(...)	(0.4)	(13.0)	(31.8)	—	—	—	—

TABLE X. — *Exports and imports of threshers in millions of Swiss gold francs.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
Germany	5.6	7.1	4.2	2.6	1.2	1.6	1.8	1.7
Canada	2.4	3.0	2.2	1.1	0.7	0.1	0.4	1.7
Great Britain	7.6	7.2	4.8	4.0	1.2	1.1	1.4	1.3
Hungary	8.8	9.4	3.7	1.2	0.4	0.6	0.9	1.0
United States	29.7	13.3	7.7	1.1	0.5	0.5	0.6	0.6
Austria	5.2	5.1	3.6	0.8	0.3	0.3	0.4	0.5
Imports.								
Netherlands	1.0	1.0	1.1	1.0	0.6	1.1	1.1	1.2
Italy	1.0	1.4	1.2	0.9	0.8	1.1	1.1	1.0
Union of South Africa . . .	0.7	0.8	0.7	1.1	0.9	0.3	0.6	0.9
Spain	3.5	5.1	4.0	0.7	0.4	0.4	0.4	0.4
Canada	48.6	11.5	5.2	3.6	0.3	0.3	0.2	0.1
U. S. S. R.	...	3.8	14.7	0.5	—	—	0.1	0.1
Argentina	4.1	2.5	0.7	0.0	0.0	0.0	0.0	0.0

Cream separators. — The most important production and export in dairy machinery is to be noted in Sweden, which exported in 1935 cream separators to the value of nearly 10 million Swiss francs. Next came, but at great distance, Germany and Great Britain. Germany, in fact, imports a few more cream separators than it exports. The German imports of cream separators amounted in 1935 to almost half the total imports of agricultural machinery into Germany. A considerable demand for cream separators exists in France, the United States, Australia and New Zealand (Table XI).

TABLE XI. — *Exports and imports of separators in millions of Swiss gold francs.*

Countries	1928	1929	1930	1931	1932	1933	1934	1935
Exports								
Sweden	35.0	25.1	24.5	18.1	10.0	9.9	9.3	9.8
Germany	4.2	5.5	3.4	2.1	1.5	1.4	1.3	1.4
Great Britain	1.3	1.1	0.6	0.6	1.2	1.4	1.6	1.3
Belgium and Luxemburg	3.2	3.2	2.8	1.3	0.7	0.8	1.0	0.9
Finland	1.6	2.1	1.6	1.0	0.4	0.3	0.4	0.7
United States	4.1	3.6	4.6	2.6	1.9	1.4	0.6	0.2
Imports								
France	3.1	2.4	4.6	4.1	1.8	3.2	1.8	1.9
Germany	3.7	3.1	3.7	2.9	2.3	2.3	2.1	1.4
United States	2.8	4.4	1.5	0.4	0.2	0.6	0.7	1.4
Australia	2.3	3.8	3.5	2.7	2.1	2.5	1.2	1.3
New Zealand	2.0	1.6	2.3	1.2	2.4	1.3	1.2	1.0
Canada	4.6	4.1	6.4	2.5	1.4	1.6	1.3	0.9
Union of South Africa	1.1	1.1	0.6	0.4	0.3	0.3	0.6	0.7
Czechoslovakia	3.3	2.4	1.8	1.6	0.8	0.8	0.4	0.5
Norway	1.3	1.1	1.1	0.9	0.4	0.5	0.4	0.4
Austria	2.0	1.5	1.6	0.9	0.4	0.3	0.3	0.4
Great Britain	2.1	1.7	1.7	1.5	0.5	0.3	0.4	0.4
Poland	5.4	2.4	2.0	1.1	0.2	0.2	0.1	0.2

* * *

From the various tables and the above observations, a progressive development of the international trade in agricultural machinery may be traced up the year 1929-30, followed by a depression which reached its lowest point in 1932. Since then a tendency to a slow recovery is to be noted which has not yet attained its full expansion.

The recovery in the internal trade and consequently the production in the different countries is more readily noticeable than that in the international trade. This is not, however, true for countries with a preponderant export trade in agricultural machines, where production has met with increasing difficulties. Great Britain is an exception, its trade in agricultural machinery, in spite of the large proportion of exports to production, was relatively little affected by the crisis of 1932, and since then there has been a rapid recovery. It follows from this and other indications that the international trade in agricultural machinery may recover readily and quickly in countries which impose on their economy the fewest possible restrictions.

H. J. Hopfen.

SCIENTIFIC MANAGEMENT IN RABBIT BREEDING

I. — Method employed in the practical and scientific breeding of the rabbit, based on heredity and milk aptitude.

In a memorandum presented to the Italian Ministry of Agriculture and Forestry, the A. emphasised the utility of determining the quantity of milk produced and the duration of the period of giving milk in rabbits, in order to solve the question of the number of young which should be left with the mother and the duration of their suckling.

In this report, it was also shown that only the application of this method would solve the difficult problem of rabbit breeding, and prevent the heavy mortality, which occurs in the litters from the first days of birth up to the age of 3 months, a mortality which affects about 50 per cent. of the young.

It is necessary in animal husbandry and in rabbit breeding especially, at the present stage of biological studies, that the laws of heredity which govern reproduction and the development of the individual within the family species, should be fully taken into account, it must not be forgotten, however, that these laws have a gradual and slow action. On the other hand, the laws which govern the evolution of the species, that is to say, the mutations, cannot be taken into consideration, because they are phenomena which occur so unexpectedly and so rarely that only exceptionally can any advantage be taken of them, when they happen to arise.

The breeder should take advantage of the laws of hereditary transmission in the breed characters and especially of the *spontaneous individual variations*, or those artificially produced, by appropriate methods of functional experiments, variations which are practically universal and may occur in any of the organs and for all characters. They exist, in fact, in all individuals and in all breeds, in all ways and at all times, and are observed by every breeder. It is because these facts have not been considered that rabbit breeding has always remained stationary.

Some rabbits give birth to 12 young at a time but do not produce in the first five days of the lactation period more than 25 grams of milk; others, on the contrary, secrete up to 180 grams. The young of the former are practically certain to die in their first days of existence, while those of the latter thrive and flourish.

In other cases, the doe-rabbit has a very poor milk secretion, which is sufficient to keep her litter alive, but growth is slow and irregular. As soon as the young of these litters attain their 24th or 30th day and begin to leave their mother, they eagerly throw themselves, forced by the hunger which has not ceased to torment them from birth, on whatever food they may find in the hutch and, if they succeed in finding anything, they gorge themselves to bursting point. Needless to say, this super-abundant feeding causes the young rabbit to perish or at the very least induces a severe attack of diarrhoea.

These constant losses which often adversely affected results in breeding rabbits, were a subject of serious consideration and some five years ago, the A. undertook the somewhat difficult task of solving this problem, utilising all possible resources obtainable from science and experience.

Impressed by the irregularity of the development of certain litters suckled by different mothers, though of the same breed, of the same weight and fed in the same manner, the A. made some drastic tests in order to discover the cause of this phenomenon. Different foods were tried containing a rich supply of proteins and organic mineral compounds, air and sun were given in abundance, a device was applied to the windows in order to obtain the benefit of the ultra-violet rays, and in winter, a kind of *tepidarium* was improvised; but all efforts were in vain and the mother rabbits who had been poor breeders received very little benefit from all these attentions. It was thought that the cause of this mortality in the young rabbits might be due to the insufficiency of milk secretion in the mother. The A. therefore studied this question and determined to see if it were possible, with rabbits as with cows, to effect a selective breeding based on milk production aptitude.

For this purpose there were chosen 21 doe-rabbits of the same weight, of the same age and of the same breed (Chinchilla), derived from the same stock, and as docile as possible in view of the necessary experiments, and all were put at the same time to the male. Between the night of 23 March, 1930 and the following morning, all the rabbits had littered successfully, except one, which for reasons the A. was unable to determine, had aborted some days before.

The different doe-rabbits had from 5 to 10 young each.

On ascertaining that the mother rabbits were in good health there was administered to each one (according to the nutrition tables of CHARON, one of the best of French authorities on the subject of practical rabbit breeding during the last few years) a ration identical in quantity and quality, and also as balanced as possible from a chemical as well as from a biological point of view.

The fifth day after birth (the date on which the doe-rabbit usually begins to have a regular milk secretion), that is to say, on 29 March, 1930, the A. undertook, following a very practical method, a control of the quantity of milk produced, carrying out the operations twice a day: at 7 a. m. and at 7 p. m. The mode of operations was as follows:—

The A. first weighed the doe-rabbit before suckling, on a weighing machine of a certain precision, then put her down carefully (in order to avoid any excitation, always harmful to regularity in lactation) on a well prepared bed, which he took care to keep well away from too brilliant a light, and also rendered practically dark by means of a special cover. In the hutch, there were already placed hungry young rabbits to the number of 10 at least, also weighed, independently of the litter and the breed, solely in order to determine the quantity of the milk of the doe.

After having ascertained that this milk control was exact, the A. waited until the doe-rabbit had suckled her young, for the maximum period well known to breeders. After suckling, the teats were gently pressed to make sure that no milk was left, then the mother and the young were weighed. The difference between the weights of the mother and the young gave the exact quantity of milk which the mother had before suckling. In the evening, after the 7 p. m. control, the two weights of milk, for each doe-rabbit were entered in the following way:—

Serial number of the doe-rabbit	Date	Weight of milk at 7 a m	Weight of milk at 7 p m	Total weight of milk
5	29 March 1930	60 grams	48 grams	108 grams

and the following table was assembled:

Bertelli *breeding farms, Cecina (province of Leghorn).*
Selection table of milk aptitude in doe-rabbits.

Serial Number of doe-rabbits	1st day	2nd day	3rd day	....	....	45th day	Total
1	32 gm	36 gm	24 gm	......	....	28 gm	1 314 gm
2	26	22	32	....	....	20	2 562
3	8	6	6	....	......	10	698
4	10	12	16	....	......	18	1 300

As a result of these experiments, carried out and registered during a period of four consecutive years, on hundreds of subjects, the following conclusions were reached by the A.

II. — Conclusions.

(1) Milk production is an individual, congenital and hereditary characteristic.

(2) In rabbits of all breeds, there is no exact and scientific relation between weight and milk secretion.

(3) In the average selected breeds (maximum weight 4 kg.), during the maximum period of lactation (12th-16th day), an average of 35 grams of milk per day and per kg. of live weight of the animal is obtained. The milk secretion is not in direct relation to the weight of the animal having regard to the anatomical characters.

(4) The normal period of effective lactation never exceeds 45 days.

(5) The nutrition of the mother during the second half of the gestation period influences the milk secretion and the size of the young produced.

(6) An alimentation rich in proteins (and especially in amino-acids) during the latter half of the gestation period, greatly increases the vigour of the young.

(7) Individuals born in October and December attain their complete development sooner than those born in March or April; the same is true for females which reach maturity a month at least before those born in the spring.

(8) Each doe-rabbit should suckle a number of young proportional to the quantity of milk she produces.

(9) The milk secretion increases up to the 25th day and begins to decrease on the 30th.

(10) The doe-rabbits which have an effective lactation period of less than 45 days should be immediately eliminated as breeders.

(11) Doe-rabbits which have a quantitatively high milk secretion, but whose young develop slowly, and show wrinkling of the skin, should also be eliminated as breeders since their milk is defective.

(12) The influence of the male in the transmission of the milk aptitude is undoubted.

(13) Scientific breeding methods are always the most effective in attaining improved mammary secretion.

(14) For a breed to be perfect, the existence of one of the principal qualities of breeding animals (for example, an abundant and nourishing milk secretion) is sufficient. This analogy is explained by the correlation of development, a very important subject, which it is proposed to discuss in detail in a later study. Present day breeders have usually, on the other hand, the habit of considering: a few special characteristics or sometimes one only, or one or several parts of the body, the object being to attain, by means of the correlation of development, the best results.

(15) The scientific application of certain methods of intensive alimentation to the doe-rabbit, during the gestation and suckling periods, has, as immediate consequence, a precocious development of the young (characterised by a more rapid completion of the skeleton) that is to say, the attainment of the adult state in a minimum time and in a shorter period than the normal.

(16) The number of young in a litter has only a minor influence on the definite weight of the individuals; the size is a phenomenon of heredity. While good nourishment and good maintenance result in vigour and tend to increase rapidity in development, the maximum weight attained is determined by hereditary forces and cannot be exceeded. No amount of special care could give to a " Himalaya " rabbit the size of a " Giant Flanders "; but, by taking into consideration the foregoing remarks the animal can be made to attain adult size at the end of 4 months (precocity), and this is already an excellent result.

(17) Precocity, far from being the natural attribute of any particular breed, may be obtained in practice by utilising doe-rabbits with a good milk production and by providing, at the end of the lactation period, a systematic and intensive feeding.

(18) The phenomenon of precocity must not be confused with perfection in form, which is a consequence and not a distinctive characteristic.

(19) Precocity must not be confused with maturity.

(20) There are two kinds of varieties in maturity; that which occurs sooner than the normal period for a given breed, and that which occurs later.

(21) The date on which the animals attain their full maturity is of considerable importance; the rabbits should attain maturity at a time as near as possible to the normal period for their breed.

(22) In these two cases, certain facts must be taken into consideration. If, as breeders, individuals are chosen which have attained maturity earlier than normal, sooner or later, the size of the individuals will decrease and the family will die out. If, on the other hand, animals are taken as breeders which have reached maturity slowly, the size of the progeny will increase, but some time or other fecundity will be affected and the family will also die off.

(23) If alimentation is not maintained, after the suckling period, according to the established rules, precocity, if appearing, will not continue; it will appear sooner and will persist more readily if no change is made in the methods of feeding which have induced it.

(24) Doe-rabbits with a good milk production require a diet as varied as possible and rich in nitrogen and mineral salts.

(25) It would be useless to attempt to change a doe-rabbit with mediocre milk aptitude into one with a good milk production, by giving it a scientific feed of concentrates and the best hygienic care.

(26) In all breeds of rabbits, individuals may be found having a tendency to improvement.

(27) The tendency to improvement is essentially hereditary.

(28) The tendency to improvement in the female or the male can only be determined by comparing the milk aptitude of the female descendants with that of the parents. Animals born of parents having shown a tendency to the most marked improvement should be selected for breeding purposes.

(29) A doe-rabbit having a very good milk aptitude, if given a scientific feed corresponding completely to its requirements, will always yield in the succeeding lactation periods, a very considerable proportion of milk, will always remain in good condition and will always be more resistant to disease, having at the same time greater regularity in its reproductive functions.

(30) For each breed and variety, there exists an average quantity of milk secretion. It varies, however, not only in individuals, but also with age. The usual cycle is observed: in the young doe-rabbit, the average milk secretion increases up to the adult age (2 years); then follows a short period during which it remains stationary; afterwards, it decreases rapidly. This also depends on the individual.

(31) The quantity of milk increases in the descendants all the more surely and in a less number of generations, in proportion as the mother possesses by nature a considerable milk production, for example at least 2.4 litres (in 45 days).

(32) The method which consists in mating well-proven males, that is to say, males obtained from parents of good pedigree, with doe-rabbits of medium

milk production, brings about, with little expense, a replacement of average by good breeders.

(33) The inverse system of breeding, in employing an average male with a good female, is scientifically false and in practice uneconomic and useless.

(34) The coupling of a male and female both having a selected pedigree would represent perfection; but in order to bring this about, it would be necessary at once to destroy a heavy proportion of the existing rabbits and to replace them with selected animals. Such a course would be from the economic, and therefore from the practical standpoint, impossible.

(35) Selection practised on doe-rabbits obviously gives slower results, at least, in the first generations, since a good milk secretion in the female may be counter-balanced by the selection of the males, whose value may not be completely known. It is for this reason, among others, that for the present, there should be selection of males of good pedigree, by means of testing (for milk) their female progeny.

Enrico Bertelli.

GORGONZOLA (*).

The importance of Gorgonzola Cheese in world commerce.

Italy ranks first in world cheese production; in the most prosperous periods her exports have reached half a million quintals. In this striking export movement are comprised hard as well as soft cheeses, and among the latter, Gorgonzola takes the first place.

According to the statistics of the *Federazione Nazionale Fascista del Latte, Derivati ed Affini*, the quantity of Gorgonzola produced in 1933 was calculated at 410,000 quintals. Taking the average selling price during the solar year as Lit. 260 per quintal, the total value of this production must have exceeded Lit. 100 million.

The official Italian trade statistics (see following table) state that the total quantity of Gorgonzola exported on the eve of the war (including " stracchino " and " fontina " cheeses taken as a whole) was about 90 thousand quintals; from 1924 to 1931 inclusive, this amount was increased considerably. The highest figure for imports was attained in 1925 with 128,000 quintals; later a new decline in exports was noted, caused by the world economic crisis and by the various protective measures taken by the importing countries (quotas, etc.).

As regards tendencies in the Italian export trade, it should be noted that during the years 1931-33 inclusive, Great Britain imported soft cheeses only.

(*) The present article on Gorgonzola cheese has been written in response to the wish of readers in various countries, who have shown a marked interest in the subject.

In France, the importation of soft cheeses is closely followed by that of hard cheeses. In the United States, however, hard cheeses are chiefly imported, soft cheeses only representing 7 to 8 per cent. of the total of Italian cheese imports. For Switzerland, the import trade in soft cheeses is about double that in hard cheeses.

Total exports of soft cheeses (Gorgonzola, Stracchino and Fontina).

Year	Total Quantity in quintals	Total Value in Lit
1923	78,558	83,998,131
1924	117,552	118,127,920
1925	128,488	129,589,504
1926	103,602	107,197,283
1927	104,195	93,839,963
1928	101,537	87,606,748
1929	99,715	85,909,609
1930	103,817	79,451,668
1931	106,961	72,231,977
1932	85,798	46,100,740
1933	72,760	37,553,011
1934	70,405	31,643,665

England, which is the chief buyer of Gorgonzola, in 1907 absorbed 36 per cent. of the total Italian production, and up to 61 per cent. in 1913. In 1907, France consumed 33 per cent. of the production, a figure which has now fallen to 11 per cent.; Switzerland, although less important, in 1912 disposed of about 13 per cent. of the total value of the Gorgonzola export.

CHARACTERISTICS OF GORGONZOLA CHEESE.

To avoid confusion, it should be noted that the denomination " Gorgonzola " denotes two quite different cheeses, from the point of view of preparation, ripening and taste, and also of commercial importance:

(1) the *green* or fully ripened gorgonzola,
(2) *white* gorgonzola or the " pannerone " of Lodi.

The *green* or true " gorgonzola " is by far the most important.

Gorzonzola is a " ripe " (or " arborised "), that is to say what is called a blue curd cheese (the Italians usually call it a green curd). of the Roquefort type. Among other ripe cheeses may be noted the Castelmagno (an Italian cheese); the French blue curd cheeses of Gex, Septmoncel, Sassenage, Mont-Cenis; the English cheeses, known as Stilton and Wensleydale; the Spanish cheese called Queso de Cabrales; the Portuguese cheese of Castello-Branco and the Swiss Sarrazin cheese.

The development of the moulds, either by natural or artificial means, characterises the curd, the " blue curd cheeses " or " blue cheeses " being those in which the ripening occurs throughout the mass.

In respect of the type of milk employed, according to the variety of the cheese, cows', ewes' or goats' milk, either alone or mixed, are used. The three fundamental types: Roquefort, Gorgonzola and Stilton, uncooked cheeses, coagulated by natural acidity and with a medium ripeness, are prepared, the first, with ewes' milk, the other two with cows' milk; Stilton has also a certain addition of cream.

PREPARATION OF GORGONZOLA.

This cheese (already well known in 1200) is named after a village situated 19 km. outside Milan. Gorgonzola used to be prepared in Lombardy and almost exclusively by the shepherds, who were accustomed to take their flocks from the plains to pastures in the Alps. From Lombardy, the preparation of Gorgonzola passed to the region of Novara, and to Emilia and Venetia.

At the present time, this cheese is manufactured in the following provinces. Province of Milan, 100,000 qx per year; Province of Novara, from 130 to 150,000 qx; Province of Padua, from 70 to 80,000 qx; Province of Vercelli, from 14 to 20,000 qx; Province of Como (Lecce) in the region of Valsassina, from 64 to 80,000 qx.

In shape the cheese is cylindrical, its height from 18 to 20 cm. and its diameter from 22 to 28 cm The present weight of each block is from 7 to 8 kg., and sometimes up to 10 kg , (the weight used to be 12 and even 15 kg). Externally it shows a hardish rind of a reddish colour. Often this colour is artificial and due to the " dressing " which is adopted in the case of long distance transport Internally the genuine Gorgonzola should show the characteristic veining of a greenish-blue colour, which explains the name given to this cheese of " erborinato " (*arborised*), from the Lombard word " erborin ", which signifies parsley.

PREPARATION OF THE CURD.

According to E. SAVINI, the method of preparing Gorgonzola is as follows. the cheese is made with whole milk and has, therefore, a high fat content. It is prepared with two curds obtained by the coagulation of milk taken at two different milkings. These two curds serve for the making of one mould of cheese. The milk from the afternoon milking (25-35 litres are required for a curd) is filtered immediately, placed in a heater and coagulated at a temperature of 33 to 35° C. The degree of acidity in the milk must not exceed 7 to 7°,5 Soxhlet. Coagulation must take place in about 20 minutes, by the use of titrated rennet in liquid or powder. If a normal solution of rennet 1/10,000 is used, 16-18 cm^3. are required for 100 litres of milk.

As soon as the rennet has been added, the milk is stirred with a regular, quick motion, it is then left to settle and covered with a cheese cloth. When coagulation has taken place, the curd is cut with a kind of skimmer (*spannarola*) to pieces the size of a large nut. This operation must be carried out carefully so as not to disperse the fat globules in the whey. It is again left to settle, and by means of the skimmer, the pieces of the curd are collected in an open meshed cloth, called the "*patta*". Each cloth should contain the curd of from 25 to 35 litres of milk; the corners are knotted and it is hung up in order to let the whey drain. Thus the first curd is obtained which is utilised on the following morning.

The second curd is prepared in a similar manner with milk from the milking of the following morning; it is left to drain for 30 to 40 minutes, at the same time avoiding ȧn excessive cooling.

PLACING IN THE MOULDS.

Then the placing of the two curds in the mould is begun On an inclined board, a layer of rye straw or preferably a special matting called the "*persianina*", is arranged on which the mould (*fascera*) is placed. The mould has a diameter of 25 to 30 cm. and a height of 27 to 30 cm. It is a a very thin layer of wood rolled into a hoop and kept in position by a cord, which passing through a kind of peg, also of wood, allows the diameter to be enlarged or reduced as required.

A cheese cloth is placed in the mould in such a way as to cover entirely the interior, at the same time overlapping the edges. The curds are cut into pieces 5 to 6 cm. long and 2 cm. thick and placed in the mould in layers, alternating the morning curd (warm) with that of the preceding evening (cold). The first layer must be made with the morning curd and also the last layer. It is also best to set the pieces of warm curd towards the exterior. This alternating arrangement is absolutely necessary for the good progress of the preparation. The mass in the mould is again covered with the cloth and the mould is turned every two or three hours for 12 to 24 hours. in order to effect a good draining. The cloth is then removed, but the mass is left to remain in the mould which should be placed on a rush matting, the mat being also renewed. For 3 to 4 days, the cheese is turned twice a day and is lifted from the mould when it is of a sufficient-consistency as to facilitate external drying. It is essential that the temperature of the drainage room should be maintained between 15° and 20° so as to obtain successful results.

SALTING.

Salting begins 3 to 4 days after the preparation of the cheese, when slight moulds begin to appear on the surface. The first salting is made with ordinary salt, finely powdered on the upper surface and around the mould, the second on the base. The remaining successive saltings take place, with an interval of 48 hours, using a smaller quantity of salt, and alternately on the two surfaces. At the end of 4 or 5 days salting, the cheese has taken on a certain consistence so that it can be taken out of the mould and salted on all its surfaces. Medium-sized cheeses are salted 10 times and the larger sizes 12 times; dry salting lasts from 20 to 24 days, the interval between the successive saltings being 48 hours. The quantity of salt required for 100 kg. of curd varies from 3 to 4 kg. The salting rooms must also be kept at a temperature of 15° to 20° C.

RIPENING.

The work of the Gorgonzola cheese-maker ends with the salting. The cheese is then sold to a technician, who attends to the ripening, a process which covers three phases: drying, curing and storage.

The *drying* is effected in thoroughly dry and well ventilated ripening rooms, where a temperature of 12° to 15° C and a relative humidity of 75 to 80 are maintained. The purpose of this process is to stimulate microbial activity; the cheeses are turned every 48 hours, and carefully scraped. Drying must be regulated in such a way as to avoid any marked sudden changes, und usually, the appearance of a whitish colour with reddish tinting indicates that the operation is proceeding regularly. On an average, drying requires from 20 to 30 days.

The *curing* is carried out in natural caves, but much more frequently in the curing houses situated, generally, in the plains or near the production centres (Novara, Pavia, Vercelli, etc.). This operation comprises two stages; in the first, the temperature should fluctuate between 8 and 10° C, the humidity ratio being 85 to 90. The period of time required is one month.

The bacteria develop during this period and give the cheese its characteristic appearance. Their development may be promoted by perforating the curd.

The experiments carried out by SAVINI have shown that the addition of moulds to the milk from which Gorgonzola is made speeds up the ripening process by about a month, that the method of operation is not modified and that there is no risk of any spoiling of the type of the cheese made. The introduction of selected *Penicillium* is highly advantageous, because the proportion of the product to be rejected owing to incomplete ripening may thus be reduced to zero. and the maturing of the cheeses may thus also be regulated.

During this period, the cheeses must continue to be turned and scraped, in order to prevent the exterior from becoming covered with moulds and the interior from cracking. The body of the cheese not only becomes matured but takes on a yellow colour towards the end of the first stage of the curing process. The second stage is carried out in a temperature varying from 5 to 7° C, with a relative humidity of 90 and lasts for two months. The external part of the cheese takes on a reddish colour and the interior tends to crack; the curd is yellowish with abundant markings and has a sharp taste, this indicating that the cheese is ripe and should be put into storage.

STORAGE.

Cheeses for storage are transported into rooms with a low temperature (4° to 6° C) with a saturated atmosphere of from 90 to 100. Cheeses intended for export or sale in places at a distance from the production centres, undergo a special treatment, for which various materials are employed, omitting, however, barium sulphate. This treatment can now be replaced by wrapping the cheese in tinfoil, or by adopting any other approved system of packing suitable for keeping the cheese in good condition.

The ripening of Gorgonzola is accomplished, as with all other soft cheeses, in three stages; in the first, the lactic ferments affect the lactose and transform it into lactic acid, which, in turn is transformed into lactates. In the second stage, the remainder of the lactose and lactic products continue to decompose. The third stage is marked by the decomposition of the proteins, with advanced peptonisation, aided by the action of moulds (*Penicillium*), by lactic *cocci* and by *blastomycetes*.

On the outside of the cheeses, a surface flora is found which also contribute, to the process in the interior. The rind of Gorgonzola, on complete ripening, develops a reddish colour caused by different bacteria: *Bacillus lactis erythrogenes* Hueppe (GORINI), small *streptococci* in chains of 4 to 8 individuals, and some *blastomycetes*, practically spherical and gemmate (CARBONE), some circular yeasts (BONDIOLI), etc.

CURING CENTRES.

Formerly, this cheese was characterised by the method of curing in special localities, having the necessary conditions of temperature and humidity required for ripening. The manufacture was then kept strictly to certain natural zones and to certain periods of the year. This is the case in the region of Valsassina, where as at Roquefort, there are natural caves in which the cheeses are cured. In this mountainous district of Valsassina, the Dolomites show numerous fissures forming species of grottos; air currents circulate from above downwards and passing through the cold humid mass, lose heat and emerge at fairly constant temperatures, varying from 8 to 10°. C It was in these localities, where the air currents are the most active and numerous, because of the greater number of internal fissures, that towards 1875, storehouses for the ripening of Gorgonzola were established. Beginning with these simple grottos, attempts were made to construct species of caves, containing up to 5-10,000 and even as many as from 20 to 30,000 cheeses.

The transportation of the cheeses to the " caves " of Valsassina takes place chiefly in the spring, from May to June, and continues during the summer.

To these natural caves are added others artificial in character, where a low temperature is obtained by means of ice or refrigerators. These artificial caves are situated in localities the most suitable for the transport of the cheese. They have a capacity of 50 to 60 thousand cheeses, and contain modern installations for cooling, lighting, and transport, the only external influence being caused by the temperature and humidity of the air.

It is calculated that these refrigerator storehouses are capable of holding 500,000 cheeses. These storehouses are placed below the level of the road, have a capacity of 1000 to 10,000 blocks and are supplied with long deal shelves arranged in tiers. The low temperature is generally obtained by artificial means and the storehouses are provided in the upper part with special apertures, allowing change of air and the exit of volatile substances.

YIELD.

On an average, with Gorgonzola, after 24 hours, a yield is obtained of 13 to 15 per cent. and from 10 to 12 per cent. with ripe cheese, with a decrease of 15 to 32 per cent. during ripening.

CHEMICAL COMPOSITION OF GORGONZOLA.

The fatty material contained in the cheese consists of whole milk and is never lower than 48 per cent; consequently, milk having a fat content of at least 3.4 per cent. must be used. Water content is in relation to the age of the cheese; on an average it may be considered as fluctuating between 51 and 42, and round about 36 in cheeses at a very advanced stage of ripeness. Protein represents a minimum of 39 to 49 per cent., sometime 54 per cent. of the dry matter. Generally, the richer the cheese in fat, the lower the protein content. The percentage of salts varies from 6 to 11 of the dry matter, which causes this value to vary from 3 to 6 per cent. of the natural substance, if 2 to 4.5 per cent. of the sodium cloride used in the salting is subtracted. The presence of vitamins B and D have been noted in Gorgonzola, while vitamin C appears to be absent.

To obtain a more practical idea of the above data, some results of analyses of Gorgonzola carried out by SAVINI are given in the following table:—

TABLE II. — *Analysis of Gorgonzola cheeses.*

In the natural state				Percentage of dry matter			Quality of the cheese
Water %	Fats %	Proteins %	Salts %	Fats	Proteins	Salts	
43.00	30.50	22 20	4.30	53 50	38 94	7.54	ripe
42.20	27.70	25.30	4.80	47.92	43.77	8.30	»
51.00	25,00	21.10	2.90	51.02	43.06	5.91	a few days old
43.70	26 70	23.00	6.60	47.42	40.85	11.72	ripe
45.00	27.00	22.10	.20	49 09	40.18	11.27	»

DEFECTS OF GORGONZOLA.

Causes which may bring about defects in manufacture are to be found in the milk, the degree of cleanliness, errors in ripening technique, insufficient care, and unsatisfactory systems of installation in the premises. The principal defects are softening and running, the complete lack of mould development, the abnormal development of green markings, bitter taste, surface cracks, abnormal coloration, soapy appareance, putrification and the presence of pseudo markings.

WHITE GORGONZOLA OR "PANNERONE" OF LODI.

In the district of Lodi and in Chiara d'Adda, a kind of "stracchino" has been manufactured for some time. This differs from all other types in the method of preparation and in the organoleptic characteristics of the curd, and only in external appearance does it resemble the green marked "Gorgonzola"; this is the "*pannerone of Lodi*", also known as *White Gorgonzola.*

The *method of preparation* differs completely from that of ordinary Gorgonzola. Pannerone is made with only one curd, not salted, submitted to a forced fermentation, that is to say, accelerated by means of heat. According to CORNALBA, "pannerone" is prepared in the following manner::-

Warm whole milk, taken immediately after milking, is curdled in a receptacle heated to 25-30°C, in order to obtain coagulation in 20-30 minutes. The curd is cut with the "spannarola" or skimmer, and separated from the whey; the curd is then lifted out in the cloth and divided into moulds, 25 to 30 cm. in height. The cloth is then removed and the moulds are arranged on an inclined board (drainer) in an atmosphere considerably heated by a stove or by steam. The temperature. must be kept constant and be continually maintained at 25 to 30°C.

The moulds are turned twice a day. At the end of three or four days, the cheeses are removed from their moulds and placed on shelves, a temperature of 25 to 39°C being constantly maintained. The cheeses are turned twice a day. At the end of 10 to 12 days of forcing, the cheeses are ripe and are taken into low temperature storage (5 to 10°C).

The cheese has a whitish-yellow rind, the texture is firm, soft and melts in the mouth. During the course of ripening, a considerable solubilisation of the casein occurs, and the cheese develops a buttery aspect, which starts in the centre extends towards the exterior, and is gradually produced in the whole cheese. The cheese has a slight odour of butyric and capric acids and this is the moment when the cheese should be eaten. On maturing it develops a sharp taste and an unpleasant smell, due to the formation of free volatile acids and ammonia.

"Pannarone" is one of the cheeses with the highest fat content. The proportion of fatty substances always exceeds 50 per cent. of the dry matter, and in certain seasons, during which the milk is very rich in fats, it attains as much as 55 and 56 per cent.

According to CORNALBA, the chemical composition of two samples of well-ripened cheese is as follows:

Water: 42.340 = 44.020 per cent; dry matter: 57.660 per cent. = 55.980 per cent.; fats: 31.500 per cent. = 30.500 per cent; casein: 23.710 per cent = 22.830 per cent.; ash: 3.490 per cent. = 2.605 per cent.; fat (percentage of dry matter): 54.620 per cent. = 54.930 per cent.

"Pannerone" is consumed in Lombardy and in even greater quantities in Venetia. It is also exported to Germany, Austria and Poland, where it is popular owing to its special flavour.

E. GASSER.

Publications consultaded :

ARNAUDI G., Sui penicilli del gorgonzola - Nota I. — *Bollettino dell'Istituto Sieroterapico Milanese*, Fasc. I, 1927.

ARNAUDI G., Sui penicilli del gorgonzola - Nota II. — *Zymologia, Chimica dei Colloidi e degli Zuccheri*, a. III, N. 1, Bologna 1928.

BONDIOLI M., Contributo allo studio sulla maturazione dei formaggi erborinati italiani con speciale riguardo al gorgonzola. — *Annali dell'Istituto Sperimentale di Caseificio*, Lodi 1931, N. 1-2, p. 39-60.

CARBONE D., La maturazione dei formaggi erborinati italiani. — *La Nuova Agricoltura*, Roma 1928, N. 3.

CORNALBA G., La tecnica della fabbricazione del gorgonzola, Casale 1909, C. Cassone ed., p. 42.

CORNALBA G., Panerone lodigiano o gorgonzola bianco. — *Latte e Latticini*, Lodi, maggio 1934, a. XI, N. 5, p. 108.

FASCETTI G., La pseudo erborinatura dello stracchino gorgonzola. — *Annuario della R. Stazione Sperimentale di Caseificio di Lodi*, Lodi 1899.

FASCETTI G., Sul formaggio di Castelmagno. — *Annali dell'Istituto Sperimentale di Caseificio di Lodi*, Vol. IV, p. 240, Lodi.

GORINI G., Ricerche sopra una grave malattia del formaggio gorgonzola. — *Regia Accademia dei Lincei*, Vol. 17, serie 5, fasc. 8, Roma 1908.

GORINI G., Ricerche bacteriologiche sul formaggio Gorgonzola. — *R. Accademia dei Lincei*, Vol. XV, serie V, fasc. 5, Roma 1906.

GIUFFRIDA G., Impianti di deodorazione applicati all'industria della maturazione dei formaggi gorgonzola. — *Igiene Moderna*, Genova 1933, N. 6.

MENOZZI A. e MUSSO G., Ricerche sulla composizione degli stracchini. — *Annuario della R. Stazione di Caseificio di Lodi*, Lodi 1877-1878.

REMONDINO Carlo., Il formaggio di Castelmagno — *L'Alpina*, S. A. Tip. ed., Cuneo. (sans date; a probablement paru après 1922).

SAMARANI F., Culture selezionate di *Penicillium glaucum*, per la produzione del verde del gorgonzola. — *Annuario della R. Stazione Sperimentale di Caseificio di Lodi*, Lodi 1909.

SAVINI E., Sulla maturazione del formaggio gorgonzola. — *Annali dell'Istituto Sperimentale di Caseificio di Lodi*, Lodi 1935, fasc. 5-6, p. 145-150.

SAVINI E., Il « gorgonzola » e gli altri formaggi erborinati. Comitato Nazionale per il Latte e suoi derivati, Roma 1936, p. 5-183.

VENTURELLI C., Studio di alcuni tipi di penicilli. — *Bollettino dell'Istituto Sieroterapico Milanese*, Milano, dicembre 1925.

MEDICINAL AND AROMATIC PLANTS

THE INTERNATIONAL FEDERATION FOR THE DEVELOPMENT OF THE PRODUCTION, UTILISATION AND COMMERCE OF MEDICINAL, AROMATIC AND SIMILAR-PLANTS. — This Federation is now carrying out an enquiry into the manuring of medicinal plants, and has forwarded to the organizations concerned in different countries two reports on the subject, entitled « Düngungsversuche mit Arzneipflanzen », by Professors O. DAFERT and W. HIMMELBAUR, and « Bedeutung und Entwicklungsmöglichkeit der Arneipflanzenkultur » by Dr. W. HECHT, together with the following letter and questionnaire:—

" I have the honour to forward you my report on the manuring of medicinal plants (presented at Brussels, 1935). If there should happen to be in your country any studies on manures which I have not mentioned, will you kindly inform me of them.

I would also request you to reply to the following questions —

What is the manure employed in your country for medicinal plants ? -- Farm manure ? — Mineral fertilisers ? — What are the mineral fertilisers used ? — What results have been observed ? — Growth of the plants ? — Increase in value ?

Are special manures adopted in your country for the different medicinal plants ? ".

(*signed*) Dr. W. HIMMELBAUR
Secretary General
(Vienna II, Trunnerstrasse 1-3)

MISCELLANEOUS INFORMATION

Genetics.

THE 7TH INTERNATIONAL CONGRESS OF GENETICS — This Congress will be held in the U. S. S. R., 1937, probably at Moscow, during the second half of August. The Organizing Committee consists of the following membres President A J. MURALOV - Vice-Presidentts· N. I VAVILOV and V. L. KOMAROV - Secretary General S. G. LEVIT (B. Kaluzhskaya 75, Moscow, U. S S. R). Experts and specialists in genetics are invited to take part in this Congress. Communications and summaries must be forwarded to the Secretary General as above before 15 February, 1937. Information on the Congress programme, rules of admission, accommodation facilities, means of transport etc., is now being drawn up. The programme also includes excursions in different regions of U. S. S. R.

N. v. G.

THE IMPERIAL BUREAU OF PLANT GENETICS. — Although the Imperial Bureau of Plant Genetics is not an international organization, it could be taken as an example by many so-called international institutions since the enormous extent of the British Empire provides a veritable universal field of action

The Imperial Bureau of Plant Genetics is, of its kind a model international agricultural institution. Its practical and scientific value is very high indeed and a closer examination of its organization and functions appear clearly desirable. As a basis for such a review there may well be taken the report presented by Dr. P. S. HUDSON (*) to the Fortieth Congress of the International Institute of Documentation (Copenhagen, September, 1935) which contains a number of ideas and observations worthy of note.

The foundation of the Imperial Agricultural Bureaux was the successful outcome of the Imperial Conference of 1927 (London). Eight Bureaux covering the various

---

(*) Dr P. S. HUDSON, The Imperial Bureau of Plant Genetics, *Institut International de Documentation (Institut International de Bibliographie) · Le Congrès du Quarantenaire, Copenhagen 9-24 September 1935.*

branches of agricultural science have been founded and distributed in such a way that each was established in a centre of special research. Thus for example, the Bureau of Plant Genetics has been attached to the well-known Plant Breeding Institute at Cambridge University.

The purpose of the Imperial Agricultural Bureaux, as Mr. HUDSON States, is to act as a clearing house for agricultural information emanating from a most extensive area and from widely differing sources.

Their chief purpose is to collect, summarize and render accessible to a large number of readers, the enormous mass of agricultural literature published throughout the world. The great importance of this work will be understood when it is considered that during the course of 1930, in the sole domain of plant breeding alone (not including pure cytology and genetics), no less than 4025 pages were issued. It follows that a specialist who may desire to follow closely all the publications relating to his branch of study, although one that is rather limited, should read every day about 11 printed pages. It is, moreover, indispensable that a conscientious research worker, who wishes to keep himself up-to-date, should keep in touch, not only with all events occurring in the field restricted to his speciality, but also with the progress accomplished in all agricultural sciences. Thus difficulties become insurmountable, since the number of publications to be consulted surpasses the capacity of any individual while the question of languages adds a further complication.

Before the Great War, the international scientific world adopted practically exclusively languages recognized as being of practical use to the world at large To-day it is quite otherwise. The nationalist spirit, which has become diffused throughout the world, has also made its influence felt in the quite neutral sphere of agricultural science. Every country now employs, with a certain sense of satisfaction, its own language, and it is not unusual, to cite some chance examples, to find works of international value, written in Ukrainian, Hungarian, Finnish, Portuguese, etc , not to mention the numerous publications appearing in Russian, and even more frequently in Japanese and Chinese.

It is here that the work of the Bureau begins In the first place, all agricultural publications, wherever appearing throughout the world, are collected, they are then registered and classified in a card index according to the universal decimal system. Experience has shown that a collection restricted to the titles of the publications has a limited value only. A list of titles conveys very little idea as to the contents of the studies and is no remedy for the linguistic difficulty. For this reason, therefore, since 1930, the Bureau of Plant Genetics publishes a quarterly periodical, which gives summaries in English of all studies regarding improvement, genetics and cytology of cultivated plants including forest species Publications in Russian and other less known languages are treated in fuller detail. These «Plant Breeding Abstracts» may be condered as model examples of their kind, they have found favour with experts throughout the whole world and are a very effective means of making known throughout the world the results of the experiments of practical workers and of scientific research students. Thus a most valuable service is rendered to the agricultural world.

Each official of the Bureau is a specialist in the field of study to which he is assigned. The geographical position of the Bureau, situated at the centre of genetic research, allows the progress of the work carried out, alike in the laboratories and in the experiment fields, to be followed at first hand. The officials are also kept in close touch with the experts working at the Centre itself as well as with many members of the system of Experiment Stations throughout the Empire, who, when on leave, pay visits to the Centre and to the Bureau.

This permanent contact with the vital current of research work is of particular value when replies are required for the numerous questions which reach the Bureau. For those of a bibliographical nature, which are the most frequent, the card, index, carefully kept up-to-date, constitutes an ideal basis.

Certain other questions as they arise are sometimes on general interest: a collective reply is then made, taking the form of the publication of monographs on the subjects in question which, while avoiding any criticism on the part of the writer, give a synthesis of all the works which have appeared on the particular subject during past years. Thus, the Bureau has published some extremely important and useful general reviews, as for example, the brochures dealing with vernalisation, the determination of the baking quality of wheat, plant improvement in U. S. S. R., etc.

In conclusion, reference should also be made to the Translation Service, which is employed in giving detailed analyses or full translations of certain specially important works written in little known languages. The translations are cyclostyled and made available for those concerned.

Thus, the Bureau fulfils a twofold function consisting in the assembling of the results of the studies accomplished throughout the whole world and in so making them generally known as to serve the progress of world agriculture.

N. v. G.

Viticulture.

1ST INTERNATIONAL GRAPE AND GRAPE JUICE CONGRESS (TUNIS, 18-23 OCTOBER, 1936). — The Congress made the following recommendations.

(1) That, in the various countries, producing table grapes, the ampelographic study of the principal vines cultivated should be undertaken, special attention being given to synonymy. This study, wherever it has not yet been arranged, may be entrusted to committees representative of important wine growing associations, in collaboration with official technical services.

(2) That the results obtained in the different countries should be centralised in the International Wine Office, who will submit them to the special Sub-Committee, established by the Lausanne Congress, within the Permanent International Wine Growing Committee, with a view to their publication in the Bulletin of the I. W. O.

B) *In respect of grapes:*

(1) The, Congress, adhering to the principle of quality attainment, recommends the producing nations to study for discussion at the 2nd Congress, the following points.

(*a*) Establishment of a list of vines warranting the appellation of table grapes

(*b*) Establishment of a list of dual purpose vines (for table or vintage purposes) which may be used for table consumption either, unrestrictedly, or when a shortage of the former occurs.

(*c*) Limitation of consignments on the market of grapes purely for vintage purposes not included on the preceding lists.

(2) That the producers in all wine growing countries should endeavour to decrease the cost price and to improve the quality of table grapes; these are the two factors for a successful increase in the consumption of the grape and its derivatives.

(3) That the Governments of the wine growing countries should be invited to pronounce, at the earliest possible moment, on the laws, decrees, and ordinances relat-

ing to the regulation of the maturity standard of the grape, and the establishment of these standards according to each district of production and each variety of vine.

(4) That, under the aegis of the International Wine Office, an International Technical Committee should be formed for the purpose of submitting to the 2nd International Table Grape Congress, a draft of international agreement for the control of table grape maturity.

(C) *In respect of raisins:*

That the production and consumption of raisins should be encouraged and increased, especially, in North Africa and in all countries having a Mussulman population, where raisins are in great demand

(D) *In respect of grape juices*

(1) That the methods of preparing grape juices should ensure the maximum maintenance of the properties and characteristics of the grape, in conformity with the decisions of the French Academy of Medicine, on 26 May, 1936. An endeavour should be made, by improvement in technique, to reduce temporarily, in practice, the quantity of sulphurous anhydride allowed to 100 mg of total SO_2 per litre.

(2) That every product represented as having a high vitamin content should be tested by biological experiments carried out in an Official Laboratory under the control of the Public Authorities.

(3) In consideration of the nutritive and therapeutic qualities and flavour already verified in standardized grape juices prepared according to the most up-to-date scientific, industrial and hygienic methods, that an extensive propaganda should be carried out in order to ensure an increased consumption.

(E) *In respect of the nutritive and therapeutic value of the grape:*

(1) The Congress, having verified the considerable progress, effected as much in the production as in the consumption of grape juice, record with satisfaction, that it is now possible to produce under favourable economic conditions, a grape juice giving a complete guarantee to the medical profession and to the consumer, for use as an hygienic nutritive beverage, resolves

To commission the International Wine Office, through the agency of its Scientific and Medical Committees, which shall be assisted by specialists, to proceed to laboratory research work, in order to establish the conformity of grape juice, standardised by the various processes, with the desiderata of modern therapeutic science.

(2) That grape cures should be increased in every country, under the control of the medical profession, on taking into consideration the interest attached not only to grape cures, but also to uvo-thermal and helio-uval treatments.

(3) Doctors of the 14 countries represented at the Tunis Congress, affirm the utility of grapes and grape juice both for under-nourished peoples and for world public health, and request the Section of Hygiene at the League of Nations to ensure the diffusion of studies relating to an increase in consumption of grapes and grape juices, syrups or grape concentrates in any or preparation.

(F) *In respect of concentrated musts*

(1) That, under the control of the International Wine Office, a committee should be instituted for the purpose of ascertaining the value of the various processes and apparatus for concentration, in order that the value of the methods of procedure and the

apparatus, with every indispensable scientific guarantee, may be established in respect of:—

(a) costs, including depreciation and upkeep of the apparatus;
(b) the organoleptic qualities of the products obtained;
(c) the standardisation of the constituents;
(d) the elimination of free sulphurous anhydride;
(e) the possibility of partial deacidification.

(2) That the use of concentrated musts in wine making should be increased in order to give an impetus to this industry, resulting in a reduction in costs and an improvement in technique, these conditions being necessary for the success of the new movement towards non-alcoholic nutritive products. This technique must not adversely affect the production of quality wines.

(3) That, under the patronage of the Governments concerned, and under the aegis of the International Wine Office, an institution should be founded in North Africa, for the purpose of popularizing among Mussulman peoples, the consumption of nutritive products derived from grape concentrates.

(G) *In respect of propaganda:*

(1) That every country producing grapes and grape juice should carry out an intensive propaganda as much in the producing countries as in those which are consumers, in favour of a increased sale in grapes and grape juice

(2) That, on occasion of the 1937 Exhibition, an international grape and grape juice festival, under the aegis of the International Wine Office, should be organised with the concurrence of all the wine growing foreign countries taking part in the Exhibition.

(3) That the stands for the sampling of grapes and grape juice in the centres of consumption should be increased, and that these stands should be placed under municipal and syndical control, so as to serve as an example to the trade These stands must only show first quality products, and will serve to bring before consumers literature containing information, explaining the alimentary, hygienic and therapeutic value of the grape.

(4) That general reports or clinic experiments made by physicians or specialists should be made known nationally and internationally, in order to obtain all information from the medical profession interested in this question and suitable for contributing to its success.

(5) That, in all wine growing countries, the storage of grapes should be ensured in order to bring about a greater consumption, and for this purpose, the different Governments of wine growing countries shonld encourage the establishments of cold storage rooms.

(6) That the Ministers for National Defence of the different countries should be requested to provide in the reserve stocks for the army, navy and air force, a reserve quantity of concentrated musts and raisins

(7) That in armies comprising Mussulman soldiers, rations of grape juice should be provided.

(8) That in every country, the Services for Fraud Prevention should exercise a vigilant supervision with regard to any fraudulent practice on the wholesale markets and also in the centres of consumption.

(9) That the Governments should be requested to examine the demarcation of, regions in cases where conditions of appellations of origin of different grape varieties might be established.

(10) That in every country an improvement in transport should be effected in respect of:—

(*a*) utilisation of 2 ton trucks for transport of table grapes in unimportant centres of consumption;

(*b*) generalisation in the use of refrigerator trucks;

(*c*) the organisation of grape transhipments at the ports, ensuring the provision of the plant required and the special hendling of isothermic containers.

(11) That an acceleration in the transport of grapes should be studied in order to ensure maximum freshness to the consumer.

(12) That, in every country, the transport of grape juices should be assimilated to that of other fruit juices or mineral waters, because of the necessity of bottling in the actual production areas.

(13) That Gastronomic Societies should insist on the inclusion of grapes in the baskets of fruit which are served to them

(14) That the Gastronomic Societies should register grape juices among the beverages supplied to their members

(H) *In respect of the consumption of grapes and grape juice in Mussulman centres:—*

The Congress, taking, as a basis the very interesting communication of Caid LAJIMI on the products derived from the grape, considered from a Mussulman point of view, notes that from the scientific and economic discussions which have taken place, it follows that the progress in the technique of grape juice preparation permits the obtainment, under economic conditions, of a grape juice free from any trace of fermentation and which maintains all the alimentary, hygienic and therapeutic values of the grape;

Considering the suitability of instituting systematic propaganda in every Mussulman country in order to make known the recognised qualities of grape juice;

Considering the endeavour already made by wine growing institutions for the purpose of increasing the grape juice industry and grape juice consumption, especially in Tunis and in North Africa;

Reccommends:

That the notice of the Tunisian Public Authorities should be drawn to the utility of an extensive and useful propaganda for grape juice, grape concentrates and raisins among the population of the Regency, by dedicating thereto part of the subsidies taken from the Fund established by the Decree of 3 July, 1935.

Tropical and Sub-tropical Crops.

OFFICE OF SUPPLEMENTARY CROPS IN MOROCCO — This Office has been recently founded for the purpose of centralising in a single organisation, acting in full agreement with the Administration of the Protectorate and with its assistance, the elements which are essential in view of the introduction and diffusion in Morocco of the most suitable supplementary crops for this country.

This Office includes 4 section: (1) Textiles — (2) Oil yielding plants — (3) Medicinal and perfume yielding plants — (4) Arboriculture.

J. L.

BOOK NOTICES *

Cereales

VON SIVERS & HAFFENRICHTER, Unser täglich Brot, 112 pp 10 illustrations, 8 plates in colour. Essen 1936, Essener Verlagsanstalt

To the title " Our daily bread ", the AA, have added the sub-title of " Life history of rye " The readers, in fact, obtain a very vivid and realistic idea of the plant cycle of rye, from the period of sowing up to harvesting The scientist and the artist have combined to present, under a popular and imaginative form the marvels of the life-cycle of this humble plant, which supplies the food of millions of mankind, both producers and consumers It is to all these people who unthinkingly profit by lowly cereal that the AA address themselves, giving a concise description of the plant processes which form the basis of our alimentation.

The text develops with the interest of a film, and the readers see the seed, sown by the farmer in the soil, still dormant, but already responding to the first movements of awakening tife The A then describe the anatomical and and morphological structure of the seed, germination process, cytological system of the cell, division of the nucleus cells, and also the physiological phenomena of enzyme activity, osmosis and sap movement

Under the guidance of the authors, the reader follows the young plant throughout the seasons Proportionately as the season advances, the state of growth which characterises the plant cycle and the processes which take place are described

Winter arrives and growth is suspended this is the period of repose Spring returns and growth recommences the young plant absorbs water and nutrient elements through its roots, by means of the leaves, phytosynthesis and respiration take place, vegetative development of the plant, which then passes to the reproductive stage The flowering gives the AA an opportunity of describing in an interesting manner the "mystery of reproduction ' They explain the process of pollinisation, cross fertilisation the formation and ripening of the seed Some pages deal with diseases of tye, ergot and rust in particular In this way the AA conclude the description of the plant cycle after a study of all its phases

The text of the whole book is animated by a profound artistic feeling which makes its reading as attractive as that of a novel, and the reader will forgive the AA if these flights of fancy may perhaps affect scientific exactitude

The book concludes with a carefully written index which gives an excellent and detailed explanation of the scientific terms used In respect of printing and illustrations this work has been remarkably well-prepared.

N v G

Medicinal Plants

G. **ANTONELLI**, *Le piante che ridanno la salute*, 490 pp , 96 fig Roma 1936, Federico Pustet, editore.

The object of this book is to make known to the uninitiated in medicinal science those plants having the most useful medicinal properties for the cure of various ailments.

---

* Under this heading are included short synopses of books received for review

In view of its general circulation, the A., has purposely avoided mention of any poisonous plants which should only be be employed if prescribed by a doctor. The mumber of plants studied, therefore, is very limited; however, there are more than sufficient for practical purposes.

In the first part of this treatise, several pages deal with an historical review of the utility of medicinal plants, followed by some rules on different preparations indicated in the volume, and a short technical vocabolary.

Part I (166 pages) treats of edible medicinal plants and some other well-known plants ; these are arranged in alphabetical order according to the Italian names. The A. gives for each composition - alimentary value - internal and external use - different preparations (decoction, infusion, poultices, etc) — nature of the ailments in which a cure is effected — dosage employed — all other information which the A considers of use.

Part II (212 pages) deals with the lesser known wild and cultivated plants in Italy, and also imported plants. The contents are arranged alphabetically, but in the order of the Latin names of the plants.

In the following 45 pages, the A. gives pharmaceutical information for use in the home, he gives the formulae of some preparations, notes the most common ailments and their curative herbal treatment and arranges the plants according to their medicinal properties.

The book concludes with 3 indices an index of the plants mentioned, an alphabetical index of plants mentioned and their common names and a general alphabetical index

D K.

Tobacco

BÜCKNER H , Die Biochemie des Tabaks, 446 pp , 33 illustrations Berlin 1930, Verlagsbuchhandlung Paul Parey

In every country engaged in tobacco cultivation, either because of economic requirements or purely for scientific purposes, a considerable number of publications have accumulated in the course of years, they contain a vast amount of observations and information, but, there is a lack of correlation between them and a want of connection between the physiological processes occurring, on the one hand, in the plant during its growth, and on the other, in the leaf of the tobacco plant, up to its transformation into the commercial product.

For this reason, the A has made a detailed study of the different scattered and often not easily accessible publications, and, guided by a long scientific and practical experience in the laboratory, has endeavoured to weld together all the information available on the composition of tobacco, the formation and transformation of the different components, from the moment of their formation in the living plant up to their utilisation.

The first chapter deals with carbohydrates It contains, *inter alia*, a particularily interesting account of hemicelluloses (pectins and pentosans) and of cellulose An explanation is given of the latest views on the cytological structure of the cellular membrane of the plants and its transformation terminating in lignification, a process which is of the highest importance not only in tobacco production, but also, in a general way, in the domain of plant production.

Among the nitrogenous compounds, nicotine, naturally, is the most important; this question is treated in full detail from a scientific as well as from a practical point of view

The succeeding chapters deal with organic acids, colouring matters, tannins, essential oils and resins, mineral salts, and finally the question of acidity and buffer action.

According to the A., an exact knowledge of the bio-chemistry of tobacco is indispensable for the chemical determination of tobacco quality, because on this depends the solution of this problem, which is the main purpose of the work carried out by the A., and with which this publication is mainly engaged.

The A. has made every effort to render the analysis of tobacco as detailed and exact as possible in order to determine the organoleptic qualities of amoke The method of examining tobacco is given is full details. It is in this chapter, by far the longest and most important of this work, that the A has summarised the results of the considerable amount of scientific and practical research work which he had carried out in his capacity as Director of the Scientific Laboratory for Cigarette Manufacture " Haus Neuerburg " (Germany), work which has enabled him, if, not to solve definitelv, at least to approach, with every possibility of success, the difficult problem of the chemical determination of tobacco quality.

N v G

Viticulture.

L. DOUARCHE, *Le raisin de table dans le monde*, VII — 134 pp., preface de M E BARTHE , Paris 1936 Librairie universitaire, J Gamber.

This book written on the occasion of the 1st International Grape and Grape Juice Congress (Tunis, October, 1936), gives concise information on the production and consumption of table grapes. The book opens with some general remarks on the situation of table grapes throughout the world, with a statistical table of this production. Then follows the principal chapter in which the A discusses the question of table grapes in 57 different countries and gives for each country statistical information on the regions under this cultivation, production, exportation, customs duties in force, selling prices, propaganda in favour of an increase in consumption (grape stations and grape festivals). markets for fresh grape juice and concentrates, etc.

In conclusion an account is given of the work accomplished in the various International Congresses by the International Wine Office since its establishment in 1928, for the purpose of developing production and extending consumption of table grapes.

D K

Sugar Industry.

Ricerche della Stazione sperimentale Zuccheri (R. Università degli studi di Padova), Vol II, 212 p. Padova 1936. Libreria editrice A. Draghi di G Randi

A report of experiments of some interest carried out during 1936 under the supervision of Prof. Domenico MENEGHINI. The following articles are comprised in this work:

- *Novità nel campo dell'industria saccarifera*, by D. MENEGHINI. -- 1) Data on world production of sugar from beetroot and sugar-cane. Beet growers' and sugar manufacturers' associations in Italy. Their mode of operation and effect — 2) Selection of beet seed in Italy; improvement in the commercial value of beetroot. -- Standards of selection in sugar beet: weight of roots, sugar content, percentage of ash and of harmful nitrogen. Determination of amino-nitrogen by means of a new type of colorimeter with photoelectric cell. — 3) New departures in the process of sugar manufacture: *A*) Diffusion: variations in shape and measurements of diffusers; association of the process of diffusion with that of scalding (« scottatura ») the cossettes. Recent methods of diffusion by continuous counter-jet, by which a rapid and more complete extraction of the cossettes and a high degree of purity of the concentrated juices are obtained. Extensive application of the up-to-date continuous diffusion methods of OLIER and BERGÉ (French, Italian and Belgian sugar factories and refineries) — *B*) Clarification of the juice; the following are described *a*) the TEATINI system ; *b*) flocculation of the colloids by sulphurous anhydride, and the use of a special helicoidal stirrer, selectivity and capillary activity of active charcoal rapid and complete decoloration of the juice ; — *C*) Crystallisation of the sugar . methods and apparatus for measuring simultaneously the pressure and temperature during condensation of the syrup crystalline particles, increase and purity of the saccharose crystals — *D*) Fuel alcohol obtained from sugarbeet. Enlargement of establishments for the fermentation and distillation of molasses in Italy. Increase in the production of alcohol obtained from starch yielding plants and other plants yielding alcohol Fermentation of molasses (lactic, butyric, acetonic, citric, etc) Glycero-fermentation and installation Bibliography

Ricerche sulla costituzione del saccarosio by S BEZZI

Il comportamento dei sughi nel diagramma pH-CaO $\%_0$ by P. MENEGHINI and I SORGATO

L'influenza nociva dei composti azotati nella lavorazione by I SORGATO -- Effect caused by non-eliminable nitrogen on the purification of the juices, molasses yield and difficulties of operation Harmful effect of amido-nitrogen with natural weak alkalinity.

Sulla determinazione colorimetrica dei composti azotati nella bietola, by I. SORGATO. — Copper hydrate method and STANEK PAULAS method Content in non-sugar nitrogen and comparison between Italian, German, Hungarian and Czechoslovakian beets

Composti azotati e valore tecnologico della bietola, by I SORGATO — Quantitative values and the form in which nitrogen is found in beet-root in order to indicate the influence in technology Diminution of nitrogen content so as to improve the beetroot, diminution of soluble nitrogen, nitrogen and beet production capacity relation between nitrogen and sugar Bibliography

Sopra la variabilità nel tenore in azoto amminico nella bietola, by I SORGATO Formation of reducing sugars Conditions which affect the inversion and decomposition of saccharose in refinery syrups

Sulla utilizzazione del salino potassico, by D. MENEGHINI Study on the fractional crystallisation of potassic saline resulting from the fermentation of the beet. Separation of the salts (sulphates, chlorides, carbonates) Production of sulphates by alkaline carbonates and gypsum

Sulla determinazione dell'acqua nell'alcool assoluto d'industria, by L BORELLINI — Apparatus for the exact determination of water in industrial absolute alcohol. Modification of the method of SCHUTZ and KLAUDITZ Bibliography

G S.

Cheeses

Elia SAVINI, *Il « Gorgonzola » e gli altri formaggi erborinati,* 183 p , 17 fig , Rome 1936-XIV, Soc. Arte della Stampa.

This monograph, the work of the Director of the Cheese Experiment Institute at Lodi, is designed to meet long felt want, no important work so far having been dedicated to the study of Gorgonzola.

It is well-known that Gorgonzola is a blue cheese produced from cows' milk, and that it is of considerable importance from a commercial point of view. The production, the exact value of which is difficult to estimate (about 100 million lires), is carried out chiefly in Milan, Pavia, Vercelli, Como

The A. has studied in detail the technology of the Gorgonzola, with particular reference to ripening and refining. After giving details on the chemical composition of the cheese and on the moulds employed, he enters on a discussion of the importance of the production and of the export trade

Other blue cheeses are then reported with indications on their characteristics and method of production, such are the Castelmagno, Pannerone of Lodi, Roquefort, and cheeses of lesser importance (Gex, Septmoncel, Sassenage, Mont-Cenis, Bleus d'Auvergne, Stilton, Wensleydale)

The volume is profusely illustrated, written in a clear, concise and attractive style, and possesses a useful index

G R

PUBLICATIONS RECEIVED BY THE LIBRARY

Books.

General

HANSEN, J und G FISCHER Geschichte der Deutschen Landwirtschafts-Gesellschaft Berlin, Deutsche Verlagsgesellschaft, 1936 XV, 494 p

ROYAL AGRICULTURAL SOCIETY OF ENGLAND The Farmer's guide to agricultural research in 1935 London, [J Truscott], [1936], 229 p

Plant Protection

SHARPLES, A Diseases and pests of the rubber tree London, MacMillan & c°, 1936 xvii, 480 p

Crops of Temperat Regions

FÉDÉRATION FRANÇAISE D'ÉCONOMIE ALPESTRE L'economie alpestre française. 16ème année. 1936. Paris, Berger-Levrault, 1936, 82 p

ROSSINI, S La tutela dell'economia risiera nella politica corporativa Milano, Stampa periodica italiana, 1936. 185 p.

Tropical and Subtropical Crops

ALVARADO, J. Tratado de caficultura practica Guatemala, C A, [Tip nacional], 1936. v 2. 703 p.

COTTON YEAR BOOK OF THE NEW YORK COTTON EXCHANGE 1936 prepared under the direction of ALSTON H. GARSIDE. New York, [Van Rees Press], 1936 249 p.

Horticulture.

GRAINGER, J. Garden science. London, University of London press, [1935] 265 p.

Forestry.

OXFORD. UNIVERSITY. DEPARTMENT OF FORESTRY. Forest bibliography, to 31st December, 1933. Oxford, Hall, 1936.

Rural Engineering.

PAGANO, G. e G. DANIEL. Architettura rurale italiana. Milano, U. Hoepli, [1936]. 140 p. (Quaderni della Triennale).

Agricultural Industries.

BELTRAMI, G. La filatura del cotone. Manuale teorico pratico. 3ª edizione ridotta a cura dell'Ing. LUIGI TONELLI. Milano, U. Hoepli, 1937. XV, 447 p. (Manuali Hoepli).

Various.

KOLONIAL-HANDELS-ADRESSBUCH. Mandatsgebiete in Afrika. 1936. 19. Jahrgang. Hrsg. vom Kolonial-Wirtschaftlichen Komitee, bearbeitet vom Dr. AUGUST MARCUS. Berlin-Wilmersdorf, W. Susserott Verlag, 1936. 368 p.

QUINTO CONGRESSO NAZIONALE DI CHIMICA PURA ED APPLICATA a cura del Prof. DOMENICO MAROTTA. Sardegna 29 aprile-5 maggio 1935. Atti. Roma, 1936. 979 p.

ROYAL SOCIETY OF WESTERN AUSTRALIA. Journal. v. 21. 1934-35. Perth, F. W. Simpson, 1935. 151 p.

Periodicals (1), (2), (3).

AGRICULTURE. Revue mensuelle scientifique, tecnique, pratique. v. 4, 1936. Téhéran. 18 rials int.; 8 shillings étr (Département de l'agriculture).

ARGENTINA. Junta nacional del algodón [*Publicación*] nº 1, 1935. irr. Buenos Aires. (Ministerio de agricultura).

BALGARSKI tioutioun. Le tabac bulgare Der bulgarische Tabak. v. 1, 1936, mens. Sofia. (Saiouz na tioutiounotargovtsite v Balgariia. Union des commerçants de tabac en Bulgarie Verband der Tabakhändler in Bulgarien). [Text in Bulgarian; contents in Bulgarian and French only].

---

(1) Previous list September 1936. To be continued March 1937.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); f. (copy); hebd. (weekly); int. (home price); irr. (irregular), mens. (monthly); nº (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series), v. (volume); trim. (quarterly).

(3) Between brackets [] are given translations and explanatory notes not appearing in the title of the review.

BLUMEA. Tijdschrift voor de systematiek en de geografie der planten. A journal of plant-taxonomy and plant-geography. v. 1, 1934. irr. Leiden. (Rijksherbarium). [Title in English also; articles in Dutch, English or Germany]. [Formerly: « Rijksherbarium Mededeelingen », Nos 1-70].

BRISTOL. University. Department of agriculture and horticulture. *Bulletin*. n° 1, 1927, irr.

COMPTES RENDUS de l'Association internationale d'essais de semences. Proceedings of the International seed testing association. Mitteilungen der Internationalen Vereinigung für Samenkontrolle. v. 1, 1925. 2 f. p. a. Copenhague.

DANZIG–POLEN–KORRIDOR und Grenzgebiete. Eine Bibliographie mit besonderer Berücksichtigung von Politik und Wirtschaft. v. 4, 1935. irr. Danzig. 60 DG. (Landwirtschaftliches Institut der technischen Hochschule. Abt. Wirtschaftslehre).

FEUILLES d'informations oléicoles internationales. v. 1, 1936. mens. Rome. L. 30. (Fédération internationale d'oléiculture).

INDIAN tea association. [*Publications*]. n° 1, 1901. irr. Calcutta. Prix variable par f

INSECT pest survey bulletin. v. 16, 1936. mens. Washington. (Bureau of entomology and plant quarantine U. S. Department of agriculture) [Mimeographed].

KNIJOVEN pregled. Mesetchno bibliografsko spisanie. v. 1, 1936. mens. sauf juillet et août. Sofia. Leva 50. int. Leva 100 étr. [Book review Monthly bibliographic review].

LNÁRSKÝ věstnik. Lanarský vestnik. Flachsanzeiger. Pro ČSR. v. 3, 1936. mens. Praha. Ustředni lnářsky svaz. [Containing occasionally articles in German also].

MEMELGEBIET und baltische Staaten. Eine Bibliographie mit besonderer Berücksichtigung von Politik und Wirtschaft. v. 1, 1936, irr. Danzig. 15, DG p. f. (Landwirtschaftliches Institut der technischen Hoshchule Abt. Wirtschaftslehre).

MICHIGAN. University. School of forestry and conservation. *Bulletin*. n° 1, 1932. Ann Arbor.

NEW ZEALAND dairy exporter and farm home journal. v. 10, 1935. mens. Wellington. (N. Z. Dairy produce exporter newspaper Co., Ltd.).

NORTHERN RHODESIA Government gazette. v. 26, 1936. irr. Lusaka. 12s. int. 13s. 6d. étr.

QUARTERLY bulletin of chinese bibliography. (English edition). v. 1, 1934. Peiping. $3 int.; U. S. $1,50 étr. (The Chinese national committee on intellectual co-operation, Shanghai).

REVUE marocaine des fruits & primeurs de l'Afrique du Nord. v. 6, 1936. mens. Casablanca 30 fr. int.; 47 fr. étr.

REVUE d'Oka. Agronomie-Médecine vétérinaire. v. 9, 1935. mens. La Trappe, P. Q. 50 sous. [Up to Avril 1936, « Revue de l'institut agricole d'Oka et de l'école de médecine vétérinaire de la Province de Québec »].

SUOMI. Valtion maatalouskoetoiminnan. *Tiedonantoja*. n° 98, 1935. irr. Tikkurila. [Station d'essais agricole. *Communication*].

TROUDY po prikladnoĭ botanike, genetike i selektsii. *Seriia IV. Semenovedenie i semennoĭ kontrol*. Bulletin of applied botany, genetics and plant breeding.

Series 4. *Seed science and seed testing*. v. 1, 1936. irr. Leningrad. prix var. par fasc. (Vsesoiouznaia Akademiia s. kh. naouk im. V. I. Lenina. Vsesoiouznyĭ institout rastenievodstva. The Lenin Academy of agricultural sciences. Institute of plant industry). [Contents in English also; summaries in English or German].

TROUDY po prikladnoĭ botanike, genetike i selektsii. *Seriia XI. Novye koulitoury i voprosy introdouktsii*. Bulletin of applied botany, genetics and plant breeding. *Series XI. New cultures and questions of introduction*. v. 1, 1936 irr. Leningrad. prix var. par fasc. (Vsesoiouznaia Akademiia s. kh. naouk im. V. I. Lenina, Vsesoiouznyĭ institout rastenievodstva. The Lenin Academy of agricultural sciences. Institute of plant industry). [Contents in English also; summaries in English].

U. S. A. Resettlement administration. Land utilization division. Land-use planning section. *Land-use planning publication*. n° 6, 1936. irr. Washington D. C.

WARSZAWA. Instytut badawczy lasów państwowych. *Serja A*. *Rozprawy i sprawozdania*. n° 1, 1933. irr. (Institut de recherches des forêts domaniales. *Série A*. *Travaux et comptes rendus*). [Titles and summaries of the articles in French, German or English also; text in Polish].

WILNO. Uniwersytet Stefana Batorego. Zakład systematyki roślin i Ogród botaniczny. *Prace*. n° 1, 1931. irr. (Université d'Etienne Batory. Institut de la systématique des plantes et Jardin botanique *Travaux*). [Titles and summaries of the articles in French or German also, text in Polish].

ZACHTCHITA rasteniĭ. Plant protection. v. 1, 1935. irr Leningrad prix var. par f. (Vsesoiouznaia Akademiia s. kh. naouk imeni V. I. Lenina Institout zachtchity rasteniĭ. The Lenin academy of agricultural sciences. Institute for plant protection). [Title and contents in English also].

ZA MITCHOURINSKOE plodovodstvo. v. 3, n° 3, 1936. 6 fois par an. Mitchourinsk. Rb. 17.40. (Naoutchno-issledovateliskiĭ institout plodovo-jagodnogo khoziaĭstva im. I V. Mitchourina). [Containing summaries in English]. [For fruitculture of Mitchourin. (Institute of scientific research of Mitchourin for fruitculture)]. [Formerly: « Naoutchnoe plodovodstvo »]

ŻYCIE rolnicze v. 1, 1936. hebd. Warszawa. Zł 24. (Związek izb i organizacyj rolniczych Rzeczypospolitej Polskiej). [Agricultural world (Union of the agricultural chambers and organizations of Poland)].

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

PLANT PROTECTION

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: *Melampsora larici-populina* in the Delta of Paraná †

Last summer an intense attack of poplar rust was observed in the first section (Río Luján, Canal Arias, Arroyo Carabelas, etc.) of the Islands of the Delta of Paraná. As this was a phenomenon entirely new to the country, the Phytopathological Division of the 'Dirección de Sanidad Vegetal' sent me to the place and the following observations were made.

The poplar most cultivated is that known as 'Italian poplar' (*Populus nigra* var. *italica*) in which, in all cases, the presence of the rust was observed though the intensity of the attack varied in the various localities.

In this way, in the plantations in which the attack was slight the tree resisted the parasite and appeared to be luxuriant and with full foliage while other trees were completely defoliated and appear to have entered the resting period before the season.

From the above it may be seen that the gravity of this disease is not the same in all localities. Environmental conditions (humidity and temperature), always favourable to the development of fungi in the Delta, varied from year to year and from zone to zone (conditions of cultivation, density of the plantation, presence of irrigation channels, etc.) and the intensity of the development of the disease was in direct relation to these variations.

The poplar rust appeared, from its characters, to be *Melampsora larici-populina*, Kleb. The uredospores were ellipsoidal or oblong, echinulate, orange yellow, 28-35 × 14-19 μ. The teleutospores were prismatic, rounded on both ends, very light brown, 36-50 × 8-10 μ.

The teleutospores were always on the upper side of the leaves.

In many cases, much more serious attacks by parasites other than rust were observed, namely: *Septoria populi*, Desm., *Cercospora populina*, Ell. and Ev., *Sphaceloma populi*, (Sacc.) Jenkins, being the diseases most commonly associated with the poplar rust. The presence of a *Phyllosticta* was also determined and, on the branches, a *Dothichiza* similar to *D. populea*, Sacc. and Br., causing cankers and which may have serious results.

The conclusions are:—

(1) The poplar rust was present in all cases though not with the same intensity in the whole zone.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. Roberto Fresa, Agronomical 'Ingénieur', transmitted by the official correspondent of the Institute, Mr. Juan B. Marchionatto, Agronomical 'Ingénieur', Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

(2) Other parasites were determined to be present accompaning the rust and occasionally attacking with greater intensity.

(3) The rust life cycle was not complete.

Southern Rhodesia: Locust Invasion, 1932-36 *

Monthly Report No. 41. April, 1936.

During April, 1936 no winged swarms have been reported in the Colony.

Outbreaks of Red Locust (*Nomadacris septemfasciata*) hoppers have been dealt with in the following districts, namely:— Makoni, Hartley, Salisbury, Darwin, Selukwe, Mrewa, Charter, Chibi, Gwelo, Belingwe and Nyamandhlovu.

Hoppers in an advanced stage were reported up to the end of the month.

The outbreaks in general have been comparatively light and in all accessible places have been effectively suppressed.

No disease or parasite attack has been recorded during the month.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — The Ministerial Circular II/2-654 of 1 March, 1936, gives instructions on the subject of the application of the provisions of 23 December, 1935, relative to the control of grape phylloxera [see this *Bulletin*, 1936, No. 4, pp. 79-80].

In respect of the control of non-European vines from the view point of the presence of phylloxera galls on the leaves, the new regulation corresponds, in general, to the Ministerial Circular of 2 November, 1933 [see this *Bulletin*, 1934, No. 2, pp. 36-37] which it completes in certain details.

With regard to the destruction of winter eggs it is recommended, in places where, owing to the nature of the land or the method of cultivation, the application of a layer of earth is impracticable, to treat the woody parts of the vine with carbolineum at 5 % or with other suitable preparations. Sprayings should be carried out during the first half of March. The sprayer should be brought close to the vine which should be sprayed copiously and at high pressure. (*Amtliche Pflanzenschutzbestimmmungen*, Berlin, 1. April 1936, Bd. VIII, Nr. 2, S. 37-39).

⁂ By Ordinance of 12 March, 1936, the general provisions regulating the seed certification have been re-enacted. The provisions in force in this respect since 15 April, 1935 [see this *Bulletin*, 1935, No. 7, p. 156] have been revoked. (*Ibid.*, S. 40).

⁂ By Decree of 16 March, 1936, modifying paragraph 3 of the dispositions of 21 November, 1917 relative to agents of disease, it is prohibited to use bacterial preparations in the control of animal pests. (*Ibid.*, S. 39).

---

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

⁂ A Decree of 18 March, 1936, based on the Law of 26 June, 1935 on the protection of natural sites and rare plants and animals [see this *Bulletin*, 1935, No. 10, pp. 226-227, and 1936, No. 1, p. 7], contains detailed provisions relative to the protection of plants and animals in the wild state. (*Ibid.*, S. 40-51).

⁂ The instructions for the management of custom-houses (' Anleitung für die Zollabfertigung '), a new edition of which appeared in April, 1936, contain a complete collection of the phytosanitary regulations refering to the importation and exportation of living plants and parts of living plants, and particularly all provisions concerning protection against San José scale [*Aspidiotus perniciosus*] and apple fruit-fly [*Rhagoletis pomonella*], adding to the regulations, assembled in the unique text published on 18 May, 1934 [see this *Bulletin*, 1934, No. 10, p. 221], the subsequent modifications of 22 June and 23 November, 1934; 21 February and 12 March, 1935 [see this *Bulletin*, 1934, No. 11, p. 247; 1935, No. 4, p. 85; No. 5, p. 109; No. 7, p. 156 respectively]. (*Ibid.*, 1. Mai 1936, Nr. 3, S. 78).

Germany (Bavaria). — By Police Ordinance of 7 February, 1936, relative to the protection against cherry fruit fly (*Rhagoletis cerasi*), it is prescribed in certain communes, to uproot, before 31 December, 1936, all honeysuckle shrubs (' Heckenkirsche ') either cultivated or growing wild The mazzards should also be removed. These trees may be preserved if they are intended for grafting or if they are ornamental trees. In this case, however, all fruits should be collected and destroyed when green.

All the cherries and griottes should be harvested as soon as possible before they are completely ripe. All fallen fruit should be collected and destroyed.

Trees which on account of their height do not allow the fruit to be collected should be cut down or reduced to such a height that the fruit may be completely harvested. (*Gesetz-und Verordnungs-Blatt für den Freistaat Bayern*, München, 27. Februar 1936, Nr. 6, S. 21-22).

Germany (Hamburg). — By Decree of 30 March, 1936, relative to preventing the introduction of the needle cast of Douglas fir [*Rhabdocline pseudotsugae*], the sale of plants of *Pseudotsuga* is only permitted on condition that they have been examined by the Plant Protection Service and recognised as being free from this disease. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1936, Bd. VIII, Nr. 3, S. 78).

Germany (Oldenburg). — By Notification of 3 March, 1936, relative to the trade in potatoes for planting, it is prescribed that the potatoes sold on the market as being potatoes resistant to wart disease [*Synchytrium endobioticum*] should be officially certified as such. Their origin should be accurately known and certified on request by the dealer.

The various varieties should be carefully separated in the ware-housing localities. The name of each variety should be indicated in writing. The places of sale should be provided with a label stating that the varieties on sale are resistant to wart disease and that they are subject to official supervision from the point of view of cleanliness. Dealers are obliged to take 30 tubers as samples from each lot on arrival at their warehouses and to send them to the Central Plant Protection Station. They should possess and keep up to date a register wherein the place of origin of the potatoes may be entered, the supplier, the quantity delivered and the result of the official control.

The dealer is obliged to deliver to every buyer of potatoes resistant to wart disease a certificate containing all the required guarantees. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1936, Bd. VIII, Nr. 2, S. 55-57).

England. — The Cabbage Aphis (Redfordshire, Cambridgeshire and Huntingdonshire) Order of 1936, which came into operation on 1 March, 1936, enables action to be taken with a view to reducing the damage caused by the prevalence of the Cabbage Aphis [*Brevicoryne brassicae*] to the vegetable crops (Brussels Sprouts, Broccoli, Cabbages, Kales, Turnips or other Brassica crops) grown in the district comprising the whole of the counties of Bedford and Huntingdon, including the Boroughs of Bedford and Luton, and that part of the county of Cambridge that lies mainly to the west of the main Royston - Huntingdon Road. (*The Gardeners' Chronicle*, London, March 7, 1936, Vol. XCIX (Third Series), No. 2567, pp. 146-147).

⁂ As a consequence of the spread of the Colorado beetle [*Leptinotarsa decemlineata*] into Belgium, the Importation of Plants (Amendment) Order of 1936, dated 3 April, 1936, imposes from 1 May, 1936 restrictions on the importation into England from Belgium of certain kinds of horticultural produce.

The following is a summary of the provisions of the new Order:—

(*a*) A Colorado beetle certificate in one of two forms is required to accompany living plants, potatos, raw vegetables and cider apples imported from Belgium.

(*b*) The alternative forms of Colorado beetle certificate are (1) that the produce is grown outside a radius of fifty kilometres from an outbreak; (2) that the importation is permitted by a general licence granted by the Minister of Agriculture and Fisheries, and that the conditions laid down in the licence have been observed. Alternative (2) is not applicable to potatos; it is, however, extended to produce (except potatos) from France.

(*c*) Flower bulbs, cucumbers and mushrooms are exempted from the requirement in (*a*) above and this exemption is extended to such produce from France as well as Belgium.

(*d*) The requirement in (*a*) applies, so far as raw vegetables and cider apples are concerned, only during the period 21 April to 14 October in any year.

(*e*) Certificates of origin for cucumbers and mushrooms will no longer be required where such produce is grown in countries other than France and Belgium. (*Statutory Rules and Orders, 1936, No. 313. Destructive Insect and Pest, England. The Importation of Plants (Amendement) Order of 1936. Dated April 3, 1936. (D. I. P. 588)*, London, 1936, 3 pp.).

⁂ The sale, or exposure for sale, for planting of any plants substantially attacked by certain pests and diseases has been prohibited for some 15 years under the sale of Diseased Plants Order of 1927 and earlier Orders of 1921 and 1922.

A new Order entitled the Sale of Diseased Plants (Amendment) Order of 1936 and dated 27 February, 1936 extend the provisions of the 1927 Order.

From 1 May, 1936, it will be an offence to sell, offer or expose for sale, or, after sale, to deliver, for planting, any plant which is substantially affected by any of the following diseases or pests:— Fruit Tree Cankers, American Gooseberry Mildew [*Sphaerotheca mors-uvae*], Silver Leaf [*Stereum purpureum*], Black Currant Mite [*Eriophyes ribis*], Woolly Aphis [*Eriosoma lanigerum*], all Scale Insects [*Coccidae*], Brown Tail Moth [*Nygmia phaeorrhoea*], Rhododendron Bug [*Stephanitis rhododendri*] and Powdery Scab of Potatos [*Spongospora subterranea*]; any plant which bears evidence of having been substantially affected by the Apple Capsid [*Plesiocoris rugicollis*]; any Tomato or Cucumber plant substantially affected by the greenhouse White Fly [*Trialeurodes vaporariorum*]; and any Potato or Narcissus or Daffodil plants or bulbs which are visibly rendered unfit for planting by reason of their being, or having been, affected by any insect or pest. (The expression 'plant' includes tree and shrub, and the seeds, tubers, bulbs, layers, cuttings or any other parts of a plant). (*Statutory Rules and Orders, 1936, No. 163. The Sale of Diseased Plants (Amendment) Ordes of 1936. Dated February 27, 1936.* (*D. I. P.* 587), London, 2 pp.).

Angola. — By 'Portaria' No. 1:177 of 1 April, 1933, it is forbidden to export maize found to be attacked *inter alia* by 'gorgulho', or damaged by any other cause. (República Portuguesa. Colónia de Angola. *Boletim da Direcção dos Serviços de Agricultura e Comércio*, Luanda, 1935, año VI, n.os 20 a 23 [janeiro a dezembro de 1933], págs. 182-183).

⁂ As the presence of a certain number of parasites was observed in the plantations situated in the area of the 'Intendência do Algodão', and as it was absolutely necessary for this reason to take measures to prevent propagation, the 'Diploma Legislativo' No. 503 of 26 August, 1933, established 1 October of each year as the last date for uprooting and burning cotton plants in the area of the said 'Intendência'. (*Ibid.*, pag. 191).

⁂ By virtue of the 'Diploma Legislativo' No. 505 of 2 September, 1933, there was opened in favour of the Direction of Agricultural and Commercial Services, a special credit of 300,000 Ags. for covering the expenditure on locust control for the year 1933. (*Ibid.*, pag. 192).

⁂ By virtue of the 'Portaria' 1:272 of 23 September, 1933, a sum of 20,000 Ags. was granted to the permanent fund administered by the Director of locust control for the purpose of covering urgent and unexpected expenses. (*Ibid.*, pag. 196).

⁂ The 'Diploma Legislativo' No. 543 of 30 December, 1933, revoked the 'Diploma Legislativo' No. 483 of 19 May, 1933, which opened a special credit of 300,000 Ags. for covering the expenditure necessary for the locust control. A credit of 205,544.34 Ags. was opened for covering expenditure incurred in the locust control up to 30 June, 1933. (*Ibid.*, pags. 207-208).

Argentine Republic. — The Decree No. 76.347 of 7 February, 1936, permits the inclusion in a single application of all species of fruit which are embarked and destined for consumption [see this *Bulletin*, 1936, No. 5, p. 101] on board the same ship, to the amount of 1.500 kilos; the presentation of a certificate of origin is not required in this case. The certificate which is granted will be intended for the custom-house authorities in order for permission to be given to embark the fruit. (*Boletín Oficial de la República Argentina*, Buenos Aires, 2 de mayo de 1936, año XLIV, núm. 12.442, pág. 12).

⁂ The Decree No. 76.656 of 13 February, 1936, authorises the Department of Agriculture to expend the sum of 100.000 ' pesos ' for covering the expenditure incurred in salaries paid to the staff of the Phytopathological Laboratories installed at Mendoza, San Juan and Río Negro, by virtue of the provisions contained in the Law No. 12.150 and expenditure derived from the execution the work of sanitary inspection of fresh fruit. (*Ibid.*, 7 de mayo de 1936, núm. 12.556, págs. 199 y 200).

Australia (Commonwealth of). — By Quarantine Proclamation No. 7P of 11 September, 1935, the weed pests specified in the Schedule to this Proclamation are declared to be diseases affecting plants.

The introduction into Australia of the weed pests specified in the Schedule to this Proclamation is prohibited, if the proportionate amount of seeds of any pest in any sample when mixed with other seeds, shall exceed the proportion specified in the Schedule to this Proclamation.

The proportions specified in the Schedule shall be calculated on the following basis:—

(*a*) In the case of oats, barley, wheat, buckwheat, vetches, and other seeds of similar or larger size, the number of weed seeds allowed in one pound weight (avoirdupois) of such crop seed shall be as prescribed in the Schedule.

(*b*) In the case of seeds other than those mentioned in (*a*), the number of weed seeds allowed in one ounce (avoirdupois) of such seed, shall be as prescribed in the Schedule.

THE SCHEDULE

Weed pests and maximum number of seeds of each allowed in imported seed.

Acacia armata R. Br.	Prickly acacia	20
Acaena ovina A. Cunn.	Sheep's burr	20
Allium rotundum L.	Garlic	10
Amaranthus albus L.	Common tumbleweed	50
Amaranthus paniculatus L.	Panicled amaranth	50
Ammi spp.	Bishop's weed	10
Amsinckia spp	Yellow burr weeds	10
Anagallis arvensis L.	Pimpernel	200
Anthemis cotula L.	Stinking mayweed or Fetid chamomile	10
Anthemis nobilis L.	Common chamomile	10
Argemone mexicana L.	Mexican poppy	50
Aster subulatus Michx.	Bushy starwort	10
Astragalus mollissimus Torr.	Woolly loco weed	10
Atriplex patula L.	Spreading saltbush	50
Avena barbata Brot.	. .	50
Avena fatua L.	Wild or black oat	50

Bartschia (all spp.)	Sticky weeds	50
Bassia quinquecuspis F. Muell.	Roly poly	100
Brassica (all weed species)	. . . .	20
Bulbine semibarbata Haw.	Leek lily	10
Bupleurum protractum Hoffm. & Link	Hare's ear	20
Bupleurum semicompositum L.	Dwarf hare's ear	20
Calandrinia caulescens H. B. K.	Purple Calandrinia	20
Calendula arvensis L.	Wild marigold	20
Calycotome spinosa Link	Spiny broom	20
Camelina sativa Crantz	False flax	10
Carduus pycnocephalus Jack	Slender thistle	10
Carex spp.	Sedges	300
Cassinia arcuata R. Br.	Chinese scrub	20
Caucalis nodosa Scop.	Knotted hedge-parsley	50
Cenchrus spp	. .	5
Chenopodium album L	Fat hen	200
Chenopodium murale L.	Nettle-leaved goosefoot	200
Chenopodium vulvaria L.	Stinking goosefoot	50
Cichorium intybus L.	Chicory	50
Cirsium lanceolatum L. (syn. *Carduus lanceolatus*)	Spear thistle, black thistle	10
Convolvulus spp (except *C arvensis*)	Bindweeds	10
Crepis virens L.	Smooth hawk's beard	10
Crotalaria sagittalis L	Rattlebox	10
Cucumis myriocarpus Naud.	Paddy melon	5
Cyperus rotundus L	Nutgrass	5
Cytisus canariensis L.	Cape broom	50
Cytisus scoparius Link	English broom	50
Digitaria sanguinalis Scop	Summer grass	100
Diodia teres Walt	Rough button weedor Poverty weed	10
Diplotaxis muralis DC.	Sand rocket	100
Diplotaxis tenuifolia DC	Wall rocket	100
Echium spp	Bugloss	5
Eichhornia speciosa Kunth.	Water hyacinth	10
Emex australis Steinh.	Spiny Emex	5
Eragrostis cilianensis Link	Stink grass	200
Erechtites valerianaefolia DC	Brazilian fireweed	20
Erigeron canadensis L	Canada fleabane	100
Erigeron linifolius Willd.	Flax-leaved fleabane	100
Erodium cicutarium L'Hérit.	Crowfoot	100
Erodium moschatum L'Hérit.	Musky crowfoot	100
Erophila vulgaris DC	Common rocket	50
Eruca sativa Mill.	Rocket	20
Erysimum cheiranthoides L	Treacle mustard	10
Erysimum repandum L.	Mustard	10
Euphorbia helioscopia L.	Sun spurge	20
Euphorbia peplus L.	Petty spurge	50
Foeniculum vulgare Mill.	Fennel	10
Fumaria officinalis L.	Fumitory	50
Fumaria parviflora Lam	Small flowered fumitory	50
Galinsoga parviflora Cav	Potato weed	50
Galium aparine L.	Cleavers	50
Galium murale All.	Small bedstraw	50
Galium tricorne Stokes	Rough fruited corn, Bedstraw	50
Geranium molle L.	Crane's-bill	100
Gladiolus cuspidatus Jacq.	Wild gladiolus	5
Gomphocarpus spp.	. . . .	20
Grindelia squarrosa Dunal	Broad-leaved gum-plant	10
Hedypnois cretica Willd	Drumsticks or cretan weed	50
Helenium autumnale L.	Sneezeweed	20
Hibiscus trionum L.	Bladder ketmia	20

Hypochaeris glabra L.	Smooth cat's ear	100
Hypochaeris radicata L.	Cat's ear	100
Inula graveolens Desf.	Stinkwort	50
Iva xanthifolia Nutt.	Marsh elder or false sunflower	5
Juncus capitatus Weigel	Capitate rush	100
Lactuca spp.	Wild lettuce	10
Lamium amplexicaule L.	Deadnettle	50
Lantana spp.	. . . .	5
Lapsana communis L.	Nipplewort	20
Lavandula stoechas L.	Topped lavender	50
Lepidium incisum Roth	Apetalous peppergrass	100
Linaria elatine Mill.	Toadflax	100
Linaria spuria Mill.	Cancerwort	100
Linum spp.	Flax	10
Lithospermum arvense L.	Corn cromwell take-all weed	5
Lobelia syphilitica L.	Great Lobelia	20
Lolium temulentum L.	Drake, darnel	50
Lupinus luteus L.	Yellow lupin	10
Madia sativa Molina	Pitch weed	20
Malva nicaeensis All.	Mallow of Nice	100
Malva parviflora L.	Small-flowered mallow	100
Malva rotundifolia L.	Dwarf mallow	100
Malva sylvestris L.	Common mallow	100
Malva verticillata L.	Whorled mallow	100
Marrubium vulgare L.	Horehound	5
Matricaria spp.	Chamomile	10
Melanthium virginicum L.	Bunchflower	10
Modiola multifida Moench	Red-flowered creeping mallow	200
Neslia paniculata Desv.	Ball mustard	100
Nicotiana glauca R. Grah.	Wild tobacco plant, tree tobacco	5
Oenothera biennis L.	Evening primrose	50
Orobanche cernua Loefl.	Broom rape	50
Oxalis cernua Thunb.	South African wood sorrel	50
Oxytropis lambertii Pursh	Stemless loco weed	400
Papaver dubium L.	Long-headed poppy	400
Papaver hybridum L.	Rough-headed poppy	400
Papaver rhoeas L.	Field poppy	50
Phytolacca decandra L.	Pigeon berry	50
Phytolacca octandra L.	Inkweed	50
Picris spp.	Ox tongue, hawkweed	20
Plantago lanceolata L.	Rib grass	200
Plantago major L.	Broad-leaved plantain	100
Plantago patagonica Jacq.	Bracted plantain	100
Plantago psyllium L.	Fleawort plantain	100
Plantago rugelii Decne	Rugel's broad-leaved plantain	100
Polygonum spp.	Wireweed	30
Portulaca oleracea L.	Purslane	100
Ranunculus spp.	Crowfoot or buttercup	20
Reseda alba L.	White mignonette	20
Rhagadiolus hedypnois All.	Hawkbit	20
Rhus toxicodendron L.	Poison ivy	5
Rumex acetosella L.	Sheep sorrel	200
Rumex spp. (all species of *Rumex* except *Rumex acetosella*)	Docks	20
Salpichroa rhomboidea Miers	Pampas lily of the valley	5
Salvia sylvestris	Wild sage	50
Salvia verbenaca L.	Wild sage	50
Saponaria officinalis L.	Soapwort	50
Scabiosa maritima L.	Pincushion	50
Scandix pecten-veneris L.	Shepherd's needle or Venus comb	50
Scirpus spp.	Rush	50
Senebiera coronopus Poir.	Swine's cress	100
Senebiera pinnatifida DC.	Lesser swine's cress	100

Senecio spp.	Groundsel	100
Setaria glauca Beauv.	Pigeon grass	400
Setaria verticillata Beauv.	Whorled Setaria	400
Setaria viridis Beauv.	Pigeon grass or green foxtail	400
Sherardia arvensis L.	Field madder	10
Silene conica L.	Striated catchfly	100
Silene dichotoma Ehrh.	Two-branched catchfly	100
Silene gallica L.	French catchfly	100
Silene noctiflora L.	Night-flowering catchfly	100
Sisymbrium spp.	Mustards	20
Solanum spp.	. . . .	20
Sonchus asper Hill.	Prickly sow thistle	100
Sonchus oleraceus L.	Sow thistle	100
Sorghum halepense Pers.	Johnson grass	5
Spergula spp.	Spurry	50
Stachys arvensis L.	Stagger weed	20
Stellaria media Vill.	Chickweed	200
Tagetes spp.	Marigolds	5
Triumfetta rhomboidea Jacq.	Chinese burr	10
Ulex europaeus L.	Furze or gorse	5
Urospermum picroides F. W. Schmidt	. . . .	50
Urtica spp.	Nettles	10
Veratrum viride Ait.	American hellebore	10
Verbascum spp.	Mulleins	100
Verbena bonariensis L.	Purple top, vervain	50
Verbena supina L.	Trailing vervain	100
Watsonia meriana Mill.	Merian's bugle lily	5
Zygadenus venenosus S. Wats.	Death chamomile	5

(*Commonwealth of Australia Gazette*, Canberra, 26th September, 1935, No. 51, pp. 1382-1383).

⁂ By Quarantine Proclamation No. 8P of 11 September, 1935 the importation into Australia of the following plants except in accordance with the provisions of the Quarantine (Plants) Regulations is prohibited –

(1) Tobacco seed.

(2) Cotton seed and cotton lint (raw cotton).

(3) Potatoes.

(4) Peanuts (the seed in shell).

(5) Plants or parts of plants of species of *Vitis* including the fruit.

(6) Citrus fruits from any country in which Citrus Canker (*Pseudomonas citri*) does not exist, and seeds of citrus plants from any country.

(7) Hops which are the commercial product of plants grown in countries other than those known to be free from Downy Mildew [*Pseudoperonospora humuli*] or Mosaic diseases.

(8) Nursery stock and cuttings and scions of same. (*Ibid.*, 19th September, 1935, No. 49, pp. 1339-1340).

⁂ By Quarantine Proclamation No. 9P of 11 September, 1935 is prohibited the importation into Australia of the following plants:—

(1) All stone fruit trees or parts thereof which were grown in any country in which any of the diseases known as Peach Yellows, Peach Rosette, Little Peach or Phony exists. For the purposes of this prohibition any State of the United States of America is deemed to be a country;

(2) All gooseberry plants or parts thereof from any country in which *Sphraerotheca mors-uvae* (American Gooseberry Mildew) exists;

(3) All plants or parts thereof, including fruit or seeds (other than manufactured products thereof) liable to infestation with any species of *Hemileia* from any country in which *Hemileia* exists;

(4) all sugar cane and banana plants exclusive of the fruit of the latter, grown in any country in which boring beetles of the genus *Sphenophorus, Cosmopolites* or *Rhabdocnemis* exists;

(5) Broom millet;

(6) All tobacco plants or parts of tobacco plants exclusive of the seed and the dried and prepared leaf ready for manufacturing purposes;

(7) Any plant (including any root, pad, cutting or seed) of the family *Cactaceae*, except seed of free flowering or ornamental species and varieties other than of the genera *Opuntia* and *Nopalea*;

(8) Peanut plants of any species of *Arachis*, exclusive of the fruit (peanuts) thereof;

(9) Chestnut plants or parts of chestnut plants including the fruit or nuts from any part of the world;

(10) Plants of the genus *Humulus* (with the exception of the dried flower cones(known in commerce as 'hops') grown in any country in which either Downy mildew (*Pseudoperonospora humuli*) or Mosaic exists;

(11) Citrus plants including the fruits but exempting the seeds, from any country in which Citrus Canker (*Pseudomonas citri*) exists.

The term citrus, shall comprise plants of the tribe *Citrinae* only, that shall comprise the following genera: *Citropsis*, *Citrus*, *Eremocitrus*, *Fortunella*, *Microcitrus*, *Monanthocitrus*, *Pleurocitrus* and *Poncirus*;

(12) All plants of the family *Ulmaceae* including seeds and cuttings from Europe;

(13) All plants or parts of plants (including the fruit but exempting the seeds) of the family *Rosaceae* from any country in which Fire Blight [*Bacillus amylovorus*] exists. (*Ibid.*, p. 1340).

⁂ By Quarantine Proclamation No. 10P of 11 September, 1935 is prohibited:—

(*a*) The removal of cotton plants, cotton seed or cotton lint from any part of Western Australia north of latitude twenty-six degrees south, into any other part of the Commonwealth (excepting the Northern Territory of Australia) or from any part of the Northern Territory of Australia into any other part of the Commonwealth, provided that the cotton seed or cotton lint may be removed if it is treated in accordance with the conditions prescribed in the Quarantine (Plants) Regulations;

(*b*) The removal of all citrus plants or parts thereof, including the fruit, and seeds of the sub-family *Citratae* from the Northern Territory of Australia into any other part of the Commonwealth;

(*c*) The removal into the State of Western Australia of—

(i) Apples, pears and quinces from any other part of the Commonwealth to prevent the introduction of the Codling Moth [*Cydia pomonella*] and of

(ii) Grape vines from the State of Queensland, New South Wales and Victoria on account of *Phylloxera vastatrix*;

(*d*) The removal into the State of South Anstralia of grape vines or parts thereof from the States of Queensland, New South Wales and Victoria. (*Ibid.*, p. 1340).

⁂ By Quarantine Proclamation No. 11P of 11 September, 1935, in order to prevent the introduction of the Codling Moth (*Cydia pomonella*) is prohibited the importation into the State of Western Australia of—

(*a*) Walnuts from the State of California wherever such walnuts may have been grown;

(*b*) Walnuts grown in the State of California wherever such walnuts may have been shipped. (*Ibid.*, p. 1341).

⁂ By Quarantine Proclamation No. 12P of 11 September, 1935 it is enacted that the Minister of State for Health may permit the importation into Australia or the removal from any part of the Commonwealth to any other part of the Commonwealth of any plants or goods or parts of plants for scientific purposes or in special circumstances, subject in all cases to any conditions which he may think fit to impose. (*Ibid.*, p. 1341).

Belgium. — The Royal Decree of 26 March, 1936, primarily provides for the re-organisation and functioning of the Special Service of Phytopathological Inspection.

Plants imported for transit remain only subject to the conditions prescribed by Article 6 of the Royal Decree of 15 September, 1885, putting into effect in Belgium the International Grape-Phylloxera Convention

Other dispositions of the present Decree regulate the importation and exportation of horticultural plants, nursery stock, and other products determined by the Minister of Agriculture.

The Royal Decrees of 8 November, 1912, 31 January, 1914, 2 May, 1921, 2 September, 1922, 31 May, 1923, 13 May, 1929 and 11 July, 1933, relative to the Special Phytopathological Service are revoked. (*Moniteur Belge*, Bruxelles, 26 avril 1936, 106^e année, n° 117, p. 3259-3261).

⁂ By Ministerial Decree of the same date, the Ministerial Decrees of 28 March and 30 November, 1928, 29 February, 18 April and 14 May, 1932, 10 April, 20 June, 14 July and 28 December, 1933, 17 January, 3 April, 24 December and 31 December, 1935, relative to the application of the Royal Decree of 2 September, 1922 or of 13 May, 1929, are maintained in force. (*Ibid.*, p. 3261).

Belgian Congo. — By Decree No. 8/Agri. of the Commissioner of the province of Coquilhatville, dated 10 January, 1936, every grower of cotton, native or non-native, in the district of Congo-Ubangi is obliged, within 15 days following the harvest, to uproot and destroy by fire the cotton plants grown during the season 1935-36. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 10 mars 1936, 25^{me} année, n° 5, p. 106).

Scotland. — By the Importation of Plants (Scotland) (Amendment) Order of 1936, dated 6 January, 1936, and for the prevention of the introduction of virus diseases of sugar beet and mangold, the landing in Scotland from any country other that England or Wales, Northern Ireland, the Irish Free State, the Isle of Man or the Channel Islands of any living plant of sugar beet or mangold (of the species *Beta vulgaris* L.) is prohibited except under and in accordance with the conditions of a licence issued by the Department of Agriculture for Scotland or by an Inspector of this Department. (*Statutory Rules and Orders, 1936,* $\frac{\textit{No. 7}}{\textit{S. 1}}$. *Destructive Insect and Pest, Scotland. The Importation of Plants (Scotland) (Amendment) Order of 1936. Dated January 6, 1936,* London, 1936, 2 pp.).

⁂ The Sale of Diseased Plants (Scotland) Order of 1936, dated 14 April, 1936, prohibits the sale or movement of various plants affected by the following pests: fruit tree cankers (caused by any parasitic fungi or bacteria), American gooseberry mildew (*Sphaerotheca mors-uvae*), silver leaf (*Stereum purpureum*), black currant mite (*Eriophyes ribis*), woolly aphis (*Eriosoma lanigerum*), all scale insects (*Coccidae*), brown tail moth (*Nygmia phaeorrhoea* = *Euproctis chrysorrhoea*), rhododendron fly (*Leptobyrsa [Stephanitis] rhododendri*), onion and leek smt (*Urocystis cepulae*) and apple capsid (*Plesiocoris rugicollis*). (*Statutory Rules and Orders, 1936,* $\frac{\textit{No. 341}}{\textit{S. 13}}$. *Destructive Insect and Pest, Scotland. The Sale of Diseased Plants (Scotland) Order of 1936. Dated April 14, 1936,* London, 1936, 4 pp.).

⁂ The Importation of Plants (Scotland) (Amendment) No. 2 Order of 1936, dated 17 April, 1936, contains restrictions on the landing in Scotland of plants, potatoes, raw vegetables and cider apples grown in Belgium, exemption of flower bulbs, cucumbers and mushrooms, also restrictions on the landing in Scotland of plants and raw vegetables grown in European France. (*Statutory Rules and Orders, 1932,* $\frac{\textit{No, 252}}{\textit{S. 14}}$. *Destructive Insect and Pest, Scotland. The Importation of Plants (Scotland) (Amendment) No. 2 Order of 1936. Dated April 17, 1936,* London, 1936, 3 pp.).

Spain. — By Decree of 21 February, 1936, the Institute of Agronomical Research, abolished on 16 October, 1935, and re-established by Decree of the Ministry of Agriculture, Industry and Commerce, dated 31 December, 1935, includes among its other activities the following:—

(*f*) Investigation of the etiology of diseases attacking cultivated plants, of parasitic and non-parasitic origin, classification and study of pests and testing of therapeutic or biological methods for their prevention or control.

The Institute will be divided into 9 Sections and 3 sub-Sections attached to the Presidency. The 8th Section is the Phytopathological Section.

The Central Station of Phytopathology, Madrid, will direct this Section.

The establishments which will carry out the function of experimental collaboration and divulgation and will be attached to the Phytopathological Section, will be the Stations of Phytopathology at Almeria, Badajoz, Barcelona, Burjasot, Coruña, Santander, Sevilla, Zaragoza, and Valladolid. (*Gaceta de Madrid*, 22 febrero 1936, año CCLXXV, tomo I, núm. 53, págs. 1523 a 1526).

France. — A Ministerial Decree of 14 March, 1936, demarcates the zones declared infested by the Colorado beetle [*Leptinotarsa decemlineata*] and the zones of protection. Previous Ministerial Decrees relating to the same question are revoked. (*Journal Officiel de la République française*, Paris, 19 avril 1936, LXVIII^e année, n^o 93, p. 4191-4204).

⁂ By Law of 24 May, 1936, Article 2102 of the civil code has been modified with a view to giving to traders in fertilisers, products for improvement purposes and for the control of plant diseases and pests the priviledges accorded for the provision of seeds and for the costs of harvesting during the year. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1er avril 1936, année 1936, n^o 7, p. 124).

Latvia * — New instructions concerning the phytosanitary control of nurseries have been published in the *Valdības Vēstnesis* (No. 97 of the year 1936).

Nurseries should be inspected at least twice a year by an expert authorised by the Ministry of Agriculture. One of these inspections will take place at the period when the trees are sold and the other during the period of vegetation. The expert will examine the sanitary condition of the trees and will communicate the result of the inspection to the Ministry of Agriculture.

When he observes in a nursery the presence of one of the parasites or pests mentioned below, the expert will order the destruction of the trees attacked. All owners of nurseries who wish to contest the decision of the expert will have the right to demand another inspection which will be carried out by a Commission appointed by the Ministry of Agriculture. The decision of this Commission will be final.

Apple, pear, plum and cherry trees will be destroyed if attacked by *Aspidiotus ostreaeformis, Lepidosaphes ulmi, Stereum purpureum, Pseudomonas tumefaciens* and root rot. Apple and pear trees attacked by *Nectria galligena* and *Physalospora cydoniae*. Also pear trees if the branches are seriously attacked by *Fusicladium pirinum*. Finally, cherry trees the branches of which are attacked by *Monilia cinerea*.

The trees infested by *Pseud. tumefaciens* will be destroyed if the collar is attacked or if the roots are seriously deformed.

⁂ The Latvian Federation of Agricultural Associations having been dissolved as from 1 March 1936, the Institute of Plant Protection has passed under the direction of the Chamber of Agriculture of Latvia.

Luxemburg (Grand Duchy of). The Ministerial Decree of 27 February, 1936, establishes the following :—

Art. 1. — All persons who observe the presence of the Colorado beetle [*Leptinotarsa decemlineata*] in their cultivations or storehouses are obliged to declare same to the burgermaster of the commune who will telegraph the information to the Department of Agriculture at Luxembourg.

---

* Communication from the official correspondent of the Institute, Professor MAX EGLITS, Phytopathological Cabinet of the University, Riga, Latvia.

Art. 2. — Potato crops and other Solanaceous plants declared infested by the Colorado beetle may be subjected to special treatments.

The same applies to Solanaceous plants growing in land surrounding the infested area.

Art. 3. — The agents entrusted with the control of the Colorado beetle are authorised to have free access, between sun-rise and sun-down, to fields and gardens infested or suspected of being infested for the purpose of carrying out the measures provided for by Art. 2 of the present Decree.

In addition, all owners or occupiers of land planted with potatoes or other Solanaceous plants are obliged to be subject to the measures of control and supervision considered necessary by the agents of the service for the control of the Colorado beetle.

Art. 4. — The Director general entrusted with agricultural affairs may forbid the cultivation of potatoes or other Solanaceous plants on land where the presence of the Colorado beetle has been observed or suspected or he may constrain the land owner to limit the cultivation of potatoes.

Art. 5. — It is forbidden for anyone to have or transport living Colorado beetles or eggs or larvae of this insect.

It is also forbidden to transport haulms of potatoes or other Solanaceous plants originating from land where the presence of the Colorado beetle is observed or suspected.

Art. 6. — The police, both local and otherwise, will be at the service of the agents entrusted with the control of the Colorado beetle to insure that the measures prescribed by the latter will be carried out.

Art. 7. — The members of the Commission for the improvement of crops are appointed as agents of the service entrusted with the control of the Colorado beetle and also of the phytopathological service and their agents.

Art. 8. — Infractions of the present Decree will be punished according to the penalties provided for in Art. 3, of the Law of 15 March, 1892, concerning the destruction of insects and plants harmful to agriculture. (*Mémorial du Grand-Duché de Luxembourg*, Luxembourg, 29 février 1936, n° 14, p. 163-164).

Morocco (French Zone). — The Decree of 10 March, 1936, relative to the control of lemons for export, establishes, *inter alia*, that fruits showing injuries caused by frost or sirocco, indications of internal or external parasites, especially Mediterranean fruit fly [*Ceratitis capitata*], or unhealed wounds, will be prohibited. (Empire chérifien. Protectorat de la République française au Maroco. *Bulletin Officiel*, Rabat, 20 mars 1936, XXV^e année, n° 1221, p. 348-349).

Rumania * — With a view to preventing the spread of white pine blister rust (*Cronartium ribicola*), by Ministerial Decision No. 93554 of 5 May, 1936, it is forbidden to introduce into the country young plants or seeds of *Pinus strobus*,

---

* Communication from the official correspondent of the Institute, Professor GEORGES ARION, Chief of the Plant Protection Service, Ministry of Agriculture and Domains, Bucarest, Rumania.

P. lambertiana, P. flexilis, P. monticola and *P. cembra* var. *sibirica* for a period of five years as from the date of the present Decision.

The entire stocks of plants of the above mentioned species existing in infested nurseries will be destroyed by fire.

The cultivation of these pines in infested nurseries is forbidden for a period of five years.

In addition to the above dispositions, all other measures considered necessary will be taken for the purpose of preventing the spread of the disease.

Uruguay. — By Decree No. 632/936 of 11 March, 1936, the Plant Pathology and Entomological Division is placed under the control of the 'Sección Fomento de Defensa Agrícola' and its functions are specified. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 26 de marzo de 1936, tomo 122, núm. 8879, pág. 417-A).

RECENT BIBLIOGRAPHY

AINSWORTH, G. C. "Bushy stunt": a virus disease of the tomato. *The Journal of the Ministry of Agriculture*, London, 1936, Vol. XLIII, No. 3, pp. 266-269, figs. 1-7. References, p. 269.

ALLAN, H. H. St. John's wort and allied species. *The New Zealand Journal of Agriculture*, Wellington, 1936, Vol. 52, No. 4, pp. 207-213, figs. 1-6. [*Hypericum* spp.].

ANGELL, H. R., ALLAN, J. M., and HILL, A. V. Downy mildew (blue mould) of tobacco: its control by benzol and toluol vapours in covered seedbeds. II. *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1936, Vol. 9, No. 2, pp. 97-106, figs. 1-2.
[See this *Bulletin*, 1935, No. 12, p. 281. — *Peronospora tabacina*]

APONTE J[IMÉNEZ], Ernesto. El problema azucarero de Bolivia. Estudio técnico par el Ing. Agrónomo — — —. (Ministerio de Agricultura. República de Bolivia. Publicaciones de la Dirección General de Agricultura), La Paz, Bolivia, 1936, 35 págs.
[Contains, *inter alia*, the following chapters —
6. — El Departamento de Entomología. — Su importancia en el ataque biológico de los insectos perjudiciales de la caña.
7. — El Departamento de Fitopatología. — Su importancia en las enfermedades propias de la caña].

ASA, Vongmay Chu. Observations on the length of culms of wheat-plant infected by the so-called high type and low type of the bunt. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 13, pp. 256-261. [Literature cited], p. 261.
[In Chinese, with title also in English. — *Tilletia*]

AYYAR RAMAKRISHNA, T. V., and MARGABANDHU, V. On some parasites found in association with the stem weevil pest of cotton in South India (*Pempheres affinis*, F.) & their role in its biological control. *The Madras Agricultural Journal*, Coimbatore, S. India, 1936, Vol. XXIV, No. 3, pp. 102-107. References cited, p. 107.
[Two Braconids and three Chalcids still undetermined].

Baker, R. E. D. Root disease of the lime in Montserrat. *Tropical Agriculture*, Trinidad, B. W. I., 1936, Vol. XIII, No. 6, pp. 147-148.
[*Diaprepes* spp.].

Balachowsky, A. Contribution à l'étude des Coccides de France (20^{e} note). Sur une nouvelle Lecanine hypogée du Midi de la France. *Bulletin de la Société entomologique de France*, Paris, 1936, tome XLI, n° 4, p. 56-59, 10 fig.
[*Eulecanium grassei* n. sp. on roots of fennel (*Anethum foeniculum*)].

Balachowsky, A. Contribution à l'étude des Coccides de France (22^{me} note). Sur une Lecanine nouvelle du Massif de l'Esterel. *Bulletin de la Société entomologique de France*, Paris, 1936, tome XLI, n° 8, p. 122-125, 8 fig.
[*Ctenochiton ericae* n. sp. on *Erica arborea*].

Barber, G. W. Orius insidiosus (Say), an important natural enemy of the corn ear worm. *United States Department of Agriculture. Technical Bulletin No. 504*, Washington, D. C., 1936, 24 pp, 3 figs. Literature cited, pp. 22-24.

Barrett, O. W. Note on the vegetative propagation of Derris. *Tropical Agriculture*, Trinidad, B. W. I., 1936, Vol XIII, No. 6, pp. 149-150.

Bevin, R. H. Common farm weeds: their character and control. *The Tasmanian Journal of Agriculture*, Hobart, 1936, New Series, Vol. VII, No. 2, pp. 78-82, 3 figs.
[*Caryophyllaceae*].

Böning, Karl. Uber den Einfluss der Anionen der Düngesalze auf Abbau und Abbaukrankheiten der Kartoffel. *Angewandte Botanik*, Berlin 1935, Bd. XVII, Heft 5, S. 323-335, Abb. 1-2. Literatur, S. 334-335

Bosc, Marcel. Bouillies cupriques au sulfate d'ammoniaque. *Le Progrès agricole et viticole*, Montpellier, 1936, 53^{e} année, n° 16, p. 370-375.

Boude, Antoine Sur l'emploi de la "fleur de soufre sublimé" dans les traitements contre l'oïdium. *Le Progrès agricole et viticole*, Montpellier, 1936, 53^{e} année, n° 14, p. 321-323.
[*Uncinula necator*].

Boyd, D. O, [and] **Hodson**, W. E. H. Transference of a mite from cyclamen to strawberry. *Nature*, London, 1936, Vol. 137, No. 3466, p. 581.
[*Tarsonemus pallidus*].

Brown, William The physiology of host-parasite relations. *The Botanical Review*, Lancaster, Pa., 1936, Vol. 2, No. 5, pp. 236-281 Literature cited, pp. 275-281.

Cameron, A. E. Insect and other pests of 1935. *Transactions of the Highland and Agricultural Society of Scotland*, Edimburgh, 1936, Fifth Series, Vol. XLVIII, pp. 82-121, figs. 14-39.

Chaze, Jean. Compléments à l'étude des propriétés humorales du champignon de couche envers la môle. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1936, tome 202, n° 18, p. 1529-1531.
[*Mycogone*].

Chaze, Jean, and **Sarazin**, André. Nouvelles données biologiques et expérimentales sur la môle, maladie du champignon de couche. *Annales des Sciences Naturelles*, Dixième série, Botanique, Paris, 1936, tome XVIII, fasc. 1, p. 1-85, fig. 1-9, pl. I-III. Index bibliographique, p. 81-84.
[*Mycogone* and *Verticillium*].

Cieślik, Wł., et **Kavecki**, Zb. Wystąpienie bleskotki *Aphelinus mali* Hald. w Polsce.— Das spontane Auftreten der Blutlauszehrwespe *Aphelinus mali* Hald. in Polen. *Bulletin International de l'Académie Polonaise des Sciences et des Lettres*, Classe des Sciences mathématiques et naturelles, Série *B*: Sciences naturelles (II), Cracovie, 1935, n° 8-10 *B* II, p. 343-345, pl. 13.
[See also this *Bulletin*, 1936, No. 3, p. 61].

Cunningham, H. S. The addition of mercury compounds to the fertilizer mixture as a control for common scab of the potato under Long Island conditions. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 4, pp. 100-103.
[*Actinomyces scabies*].

Demela, Josef, and Brada, Lad. Hederich-Kainit als Unkrautvernichtungsmittel auf Wiesen. *Die Ernährung der Pflanze*, Berlin 1936, Bd. 32, Heft 6, S. 105-109, Abb. 1-9.
[With titles and summaries in English and Spanish:— 'The destruction of weeds with finely ground kainit'. — 'Kainita especial, como medio para combatir las malas hierbas en las praderas' (S. 120)].

Deshusses, J. et [Deshusses], L. Consultation entomologique. Deux diptères nuisibles aux cultures ornementales. *Revue Horticole Suisse*, Châtelaine-Genève, 1936, IX• année, n° 4, p. 73-75, fig. 1-2.
[*Phytomyza echinopis* injurious to *Echinops humilis* and *Dasyneura schneideri* injurious to *Arabis albida*].

Dominik, T., i Zaleski, K. Groźna choroba wiazów i możliwości jej zwalczamia. *Roczniki Nauk Rolniczych i Leśnych*, Poznań 1936, tom XXXVI, zeszyt 1, str. 168-176, ryc. 1-5. Literatura, str. 176.
[In Polish, with title and summary in French:—'Maladie de l'orme et les modes de combat avec elle selon les exemples américains'. — *Ceratostomella ulmi*].

Dufrénoy, J ean]. Études épidémiologiques relatives à la tavelure du pommier. *Revue de Microbiologie appliquée à l'Agriculture, à l'Hygiène, à l'Industrie*, Paris, 1936, tome II, n° 2, p. 69-86, fig. 1-5. Bibliographie, p. 85-86.
[*Venturia inaequalis*].

Esau, Katherine. Initial localization and subsequent spread of curly-top symptoms in the sugar beet. *Hilgardia*, Berkeley, California, 1935, Vol. 9, No. 8, pp. 397-436, figs. 1-7, pls. 1-4. Literature cited, p. 431.

Felitz, Franz. Ensayo sobre "crespadura de las papas", enfermedad a "virus filtrante". *Revista de la Asociación Rural del Uruguay*, Montevideo, 1936, año LXIII, núm. 3, págs. 9 a 15, 6 figs.

Foex, Etienne, et Lansade, Maurice L'action pathogène d'une forme de *Fusarium oxysporum* isolée de la pomme de terre. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1936, tome 202, n° 21, p. 1812-1813.

Foex, Etienne, et Lansade, Maurice. Action pathogène d'une bactérie isolée de tubercules de pommes de terre. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1936, tome 202, n° 23, p. 1939-1941.
[*Bacterium xanthochlorum*].

Gayán, Manuel Maria. Horticultura general y especial. (Biblioteca Agrícola Española). Madrid, Espasa-Calpe, S. A., 1935, 350 págs., 65 figs. Bibliografía, págs. 325 y 326.
[Contains, *inter alia*:—
Capítulo X. — Enfermedades de las plantas hortícolas].

Geach, W. L. Root rot of grey peas in Tasmania. *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1936, Vol. 9, No. 2, pp. 77-87. References to literature, p. 87.
[A species of *Aphanomyces*, similar to *A. euteiches* and probably a strain of it, was isolated from root-rotted peas from Tasmania].

Gioelli, F. Casi di deperimenti di viti. Osservazioni sul "Pumilus medullae" V. e M. *Il Gazzettino Agricolo*, Padova, 1936, anno XIV, n. 24, p. [1], 1 fig.

GOIDÀNICH, G[abriele]. Intorno ad una « Phytophthora » causante un marciume del colletto nel pomodoro. *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di scienze fisiche, matematiche e naturali, Roma, 1936, vol. XXIII, fasc. 7, pp. 512-514.
[*Phytophthora parasitica*].

GOIDÀNICH, Gabriele. Marciume del fusto del pomodoro. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 24, p. 201, figg. 1-2.
[*Phytophthora parasitica*].

GOSS, R. W. The effect of irrigated crop rotations upon potato scab. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 4, pp. 91-96.
[*Actinomyces scabies*].

GREEN, D. E. The ink disease (or bulb scab) of Iris reticulata caused by Mystrosporium adustum Massee. *Journal of the Royal Horticultural Society*, London, 1936, Vol. LXI, Pt. 4, pp. 167-175, figs. 35-40.

GUILLIERMOND, A. L'Eremothecium Ashbyii, mouveau champignon parasite des capsules du cotonnier. *Revue de Mycologie*, Paris, 1936, tome I (n. s.), fasc. 3, p. 115-156, fig. 1-25, pl. VII-VIII. Index bibliographique, p. 155.

HARUKAWA, Chukichi, TAKATO, Ryôiti, and KUMASHIRO, Saburô. Studies on the rice-borer. IV. On the prolonged emergence period of the moth in the spring. ii. *Berichte des Ôhara Instituts fur landwirtschaftliche Forschungen*, Kurashiki 1936, Bd. VII, Heft 2, S. 239-256. Literature, S. 255-256.
[*Chilo simplex*].

HARUKAWA, Chukichi, TAKATO, Ryôiti, and KUMASHIRO, Saburô. Studies on the rice-borer. V. On the prolonged emergence period of the moth in the spring. iii. *Berichte des Ôhara Instituts fur landwirtschaftliche Forschungen*, Kurashiki 1936, Bd. VII, Heft 2, S. 257-271. Literature, S. 271.

HEIL, Karl Hubert. Untersuchungen über die Nahrungsaufnahme der Stabheuschrecke (*Carausius morosus*). *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 5, S. 49-52, Abb. 1-3. Literatur, S. 52.

HO, Shao-Hung. Notes on the important insect pests in Kashan during 1935. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 12, pp. 246-248.
[In Chinese, with title also in English].

HONECKER, Ludwig. Über den derzeitigen Stand und die Aussichten der Bekämpfung des Meltaubefalles der Gerste durch Züchtung. *Praktische Blätter für Pflanzenbau und Pflanzenschutz*, Freising 1936, XIII. Jahrg., Heft 12, S. 309-320. Literatur, S. 319-320.
[*Erysiphe graminis hordei*].

HURTADO, Evaristo A. A survey of the plant diseases in Maridagao, Pikit, Cotabato, with some suggestions for their control. *The Philippine Journal of Agriculture*, Manila, 1936, Vol. 7, No. 1, pp. 121-127, pls. 1-6.

JACK, Rupert W. Annual report of the Division of Entomology for the year ended 31st December, 1935. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 5, pp. 329-356.

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 40, March, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 5, p. 357.
[*Nomadacris septemfasciata*].

Jannone, Giuseppe. Nuovi contributi alla conoscenza della fauna delle Isole italiane dell'Egeo. V. Studio bio-ecologico e sistematico dell'Ortotterofauna con notizie sui Blattoidei, Mantoidei e Fasmoidei. *Bollettino del Laboratorio di Zoologia generale ed agraria* del R. Istituto superiore agrario di Portici, Portici, 1936, vol. XXIX, pp. 47-248, figg. I-XLVIII, tav. I. Bibliografia, pp. 237-242.
[Results of a study mission carried out by the Author in August and September, 1934 in the Italian Aegean Islands (Rhodes, Karpathos, Casos, Cos, Kalymnos, Telendo, Patmos and Santa Tecla).
In the bio-ecological part of this well documented paper the chapter should be noted on the relations existing between agricultural plants and Orthoptera (pp. 66-76).
In the systematic part numerous species, subspecies and varieties are described as new to science; also numerous insects already described by others but not observed until today in the Italian Possession are recorded]

Knowlton, G. F., and **Smith**, C. F. Capitophorus aphids infesting Chrysothamnus. *The Canadian Entomologist*, Orillia, 1936, Vol. LXVIII, No. 5, pp. 107-113, figs. 1-2.

Köhler, E. Übertragungsversuche mit dem Virus der Lupinenbräune. *Angewandte Botanik*, Berlin 1935, Bd. XVII, Heft 5, S. 277-286, Abb. 1-6.

Küderling, Otto-Ernst. Untersuchungen über die Feldresistenz einzelner Weizensorten gegen *Puccinia glumarum tritici*. *Zeitschrift fur Zuchtung*, Reihe A: Pflanzenzüchtung, Berlin 1936, Bd. XXI, Heft 1, S. 1-40, Abb. 1-3. Literaturverzeichnis, S. 37-40.

Kuwayama, Satoru. Studies on *Lema oryzae* Kuwayama, the rice leaf-beetle. Part IV - Observations on the biology and liberation of an egg-parasite, *Anaphes nipponicus* Knwayama. *Hokkaido Agricultural Experiment Station. Report No. 33*, Kotoni, Sapporo, Japan, 1935, 84 pp. 10 graphs, 4 pls. [Literature cited], pp. 77-80.
[In Japanese, with title and summary also in English].

Leach, J. G. What the plant pathologist can and ought to contribute to a potato improvement program. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 2, pp. 31-38.

Ledingham, G. A. *Rhizophidium graminis* n. sp., a parasite of wheat roots. *Canadian Journal of Research*, Ottawa, 1936, Vol. 14, No. 3, pp. 117-121, pl. 1. References, p. 121.
[A Latin diagnosis and an English description of this Chytrideaceous parasite are appended].

Malcolm, D. H. Virus diseases of tobacco. *Tha Tasmanian Journal of Agriculture*, Hobart, 1936, New Series, Vol. VII, No. 2, pp. 57-60, figs. I-III.
[Spotted wilt of tomato].

Malençon, G. Une grave maladie des artichauts au Maroc. *Revue de Mycologie*, Paris, 1936, tome I (n. s.), fasc. 3, p. 165-175, fig. 1, pl. X-XII.
[Caused by *Ascochyta hortorum* (Speg.) Smith var. *compositarum* n. var. A Latin diagnosis of the new variety is appended].

Malenotti, E[ttore]. Sui Consorzi di difesa della frutticoltura. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 25, p 209, figg. 1-4.

Mannini, Piero. Studi sul cloroma del gelso. I. Alterazioni del plasto clorofillico. *Annuario della R. Stazione Bacologica Sperimentale di Padova*, Firenze, 1936, vol. XLVIII, pp. 683-720, figg. 1-24. Bibliografia, pp. 719-720.

Masera, Enrico. Contributo allo studio della virulenza e patogenicitâ di alcuni entomomiceti. *Annuario della R. Stazione Bacologica Sperimentale di Padova*, Firenze, 1936, vol. XLVIII, pp. 477-491, 5 figg. Bibliografia, p. 491.
[*Beauveria* spp. and *Tenebrio molitor*].

Mayer, K. Bekämpfung der Rübenwanze durch Fangstreifen. *Mitteilungen für die Landwirtschaft*, Berlin 1936, 51. Jahrg., Heft 16, S. 331-332, Abb. 1-6.
[*Piesma quadrata*].

Melloni, Mario. Deperimenti del trifoglio da " Sclerotinia Trifoliorum ". *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 24, p. 201, 1 fig.

Menor, Juan Gómez. La buba de los cítricos. *Revista de Agricultura y Comercio*, Ciudad Trujillo, República Dominicana, 1936, vol. XXVII, núm. 79, pág. 2362 y 2363, 1 fig.
[*Sphaeropsis tumefaciens*].

Menusan, H., Jr., and **Butcher**, F. G. A review of some current research in entomological potato problems. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 3, pp. 64-70. Literature cited, pp. 67-70.
[Chiefly in the U. S. A.].

Menzel, Klaus-Chr. Versuche zur Verbesserung nikotinhaltiger Spritzmittel. *Angewandte Botanik*, Berlin 1936, Bd. XVIII, Heft 1, S. 22-26, Abb. 1-2.
[Particularly in the United States of America].

Menzel, K[laus]-Chr. Untersuchungen der schädigenden Wirkungen kupferhaltiger Spritzmittel. *Angewandte Botanik*, Berlin 1935, Bd. XVII, Heft 4, S. 225-253, Abb. 1-8. Literaturverzeichnis, S. 252-253

Miles, Herbert W., and **Cohen**, Morris. The chrysanthemum leaf miner and its control. *The Journal of the Ministry of Agriculture*, London, 1936, Vol. XLIII, No. 3, pp. 256-261, figs. 1-4.
[*Phytomyza atricornis*].

Moore, M. H. Some observations on the influence of manurial dressings and of certain other factors on the incidence of scab (*Venturia inaequalis* (Cooke) Wint.) and of spray-injury in apples *The Journal of Pomology and Horticultural Science*, London, 1936, Vol. XIV, No. 1, pp. 77-96, figs. 1-2. References, pp. 95-96.

Müller, Albert S. Estudo sobre a podridão secca em espigas de milho. *Boletim de Agricultura, Zootechnia e Veterinaria*, Bello Horizonte, 1935, anno VIII, ns. 11 e 12, pags. 163-171, 2 figs. Bibliographia, pag. 171.
[*Diplodia zeae, D. macrospora*].

Müller, Iván. Adatok a rozsdagombákkal (Puccinia) fertőzött gabonaneműek állategészségügyi jelentőségéhez. *Mezőgazdasági Kutatások*, Budapest 1936, IX. évf., 1. sz., 1-9 o., 1-3 ábra. Szakirodalom, 9 o.
[In Hungarian, with title and summary also in German:— ' Beiträge zu der tiergesundheitlichen Bedeutung der mit Rostpilzen (Puccinia) infizierten Getreidesorten '].

Oberstein, O. Fumaria officinalis L. als klimmendes Leinunkraut. *Angewandte Botanik*, Berlin 1935, Bd. XVII, Heft 5, S. 286-288, I Abb.

Ortiz Garmendia, Juan. Es obligatoria la destrucción del " Quintral ". *Boletín de la Sociedad Agrícola del Norte*, La Serena (Chile), 1936, año 24, nº 4, pág. 87.
[*Phrygilanthus* (*Loranthus*) *tetrandrus*].

Otanes, F. Q. Some observations on two scale insects injurious to mango flowers and fruits. *The Philippine Journal of Agriculture*, Manila, 1936, Vol. 7^a, No. 1, pp. 129-141, pls. 1-7. Literature cited, pp. 138-139.
[*Puto spinosus* and *Coccus mangiferae*].

Paguirigan, Domingo B., **Tugade**, Primitivo, and **de Peralta**, Fernando. Progress report on the green-leaf spot of Philippine wrapper leaf tobacco. *The Philippine Journal of Agriculture*, Manila, 1936, Vol. 7, No. 1, pp. 87-117, figs. 1-3, pl. 1. Literature cited, p. 117.
[The primordial cause of this disease is most likely not pathogenic].

Peppin, S. G., and **Hurst**, R. R. Date of digging and its relation to the development of Rhizoctonia on potato tubers. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 3, pp. 74-76.
[*Rhizoctonia solani*].

Pickles, Alan. Observations on the early larval mortality of certain species of *Diatraea* (Lepid., Pyralidae), under cane field conditions in Triniidad. *Tropical Agriculture*, Trinidad, B. W. I., 1936, Vol. XIII, No 6, pp. 155-160, figs 1-2. References, p. 160.

Pieri, A[lfredo]. La moria dei peschi *Note di Frutticoltura*, Pistoia, 1936, anno XIV, n. 6, pp. 93-98, figg. 16-17.
[From the first summary examination it would appear that the damage is caused by the asphixy of the roots and the attack by *Clasterosporium carpophilum*].

Pigorini, Luciano. Deficienze di clorofilla. (Variegature e albinismo in piante coltivate). *Annuario della R. Stazione Bacologica Sperimentale di Padova*, Firenze, 1936, vol. XLVIII, pp 553-624, figg. 1-16. Bibliografia, pp. 622-623.

Porter, D. R. Insect transmission, host range, and field spread of potato calico. *Hilgardia*, Berkeley, California, 1935, Vol. 9, No. 8, pp. 383-394, figs. 1-9. Literature cited, p. 394.

Puecher Passavalli, Luigi. Acari dannosi alle derrate alimentari ed alle piante da frutto. *Bullettino della R. Società Toscana di Orticultura*. Firenze, 1935, anno LX, vol. XX della 4^a ser., n. 11-12, pp. 169-172, 6 figg.; 1936, anno LXI, n. 3-4, pp. 38-42, 4 figg.
[*Glucyphagus domesticus*, *Tyroglyphus longior*, *T. siro*, *Aleurobius farinae*, *Rhizoglyphus echinopus*, *Carpoglyphus passularium*, *Histiogaster carpio*, *Tetranychus* spp., *Eriophyes* spp., etc.].

Quanjer, H.-M., Historique des recherches sur la jaunisse et la mosaïque de la betterave. *Publications de l'Institut Belge pour l'Amélioration de la Betterave, Tirlemont-Belgique*, Bruxelles, 1936, 4^{me} année, n° 2, pp. 23-33.
[With titles and summaries in French, Flemish, German and English. — Virus diseases].

Rawlins, W.A. Further study on continuous cultivation as a control for wheat wireworms. *American Potato Journal*, Sommerville, N. J. and New Brunswick, N. J., 1936, Vol. XIII, No. 3, pp. 70-73. Literature cited, p. 73.
[*Agriotes mancus*].

Reddick, Donald. Seed transmission of potato virus diseases *American Potato Journal*, Sommerville, N. J. and New Brunswich, N. J., 1936, Vol. XIII, No. 5, pp. 118-124. Literature cited, p. 124.

Roland, G. Recherches sur la jaunisse de la betterave et quelques observations sur la mosaïque de cette plante. *Publications de l'Institut Belge pour l'Amélio-*

ration de la Betterave, Tirlemont-Belgique, Bruxelles, 1936, 4^{me} année, n° 2, p. 35-60, fig. 1-7.
[With titles and summaries in French, Flemish, German and English. — Virus diseases].

RUNGS, CH. Diaspines [Hem. Coccidae] nouvelles du Maroc. *Bulletin de la Société entomologique de France*, Paris, 1936, tome XLI, n° 4, p. 50-56, fig. 1-2.
[*Aspidiotus malençoni* n. sp. on *Antirrhinum ramosissimum; Hemiberlesea balachowshyi* n. sp. on *Farsetia hamiltonii*].

RUSSO, Giuseppe. Gli Scolitidi nocivi all'olivo danni e lotta. *L'Olivicoltore*, Roma, 1936, anno XIII, n. 5, pp. 8-16, 7 figg.
[*Phloeotribus scarabaeoides, Hylesinus oleiperda, Leperisinus* (*Hylesinus*) *fraxini*].

SANTORO, Ricardo. Estudio de los especificos contra la Tilletia. *Archivo Fitotécnico del Uruguay*, Montevideo, 1935, vol. I, entrega 2, págs. 258 a 263, 2 figs.
[With title and summary also in English:— 'A study of seed disinfectants used against wheat bunt (*Tilletia* sp.) '].

SCHAPER, Paul. Beiträge zur mikroskopischen Diagnostik der wichtigsten Caryophyllaceensamen unter besonderer Berücksichtigung ihres Vorkommens als Unkrautbesatz in Saatwaren und Futtermitteln. *Die landwirtschaftlichen Versuchs-Stationen*, Berlin 1936, 125. Bd., Heft 1 u. 2, S. 1-100, Abb. 1-36. Literatur, S. 97-100.

SCHULTZ, Enrique F La cochinilla algodonosa grande o cochinilla blanca acanalada (« Icerya purchasi ») en las quintas de citrus *Revista Industrial y Agricola de Tucumán*, Tucumán, 1935, tomo XXV, núms, 1 3, págs. 56 a 58.

SCHULZE, Konrad Weizenwanzen-Schaden an Getreide. *Mitteilungen der Gesellschaft für Vorratsschutz E. V.*, Berlin 1936, 12. Jahrg., Nr 3, S. 25 27, 1 Abb. Literatur, S. 27.
[*Eurygaster maura, Aelia acuminata, A. rostrata*].

SHAW, F. J. F., and PAL, B. P. Pusa 120 A wheat highly resistent to yellow rust. *Agriculture and Live-stock in India*, Delhi, 1936, Vol. VI, Pt. II, pp. 202-203. Reference.
[*Puccinia glumarum*].

SIMMONDS, H. W. Fruit fly in Fiji *Agricultural Journal*, Suva, 1935, Vol. 8, No. 1, pp. 22-23.
[*Chaetodacus passiflorae, C. xanthodes*].

SIMMONDS, H. W. Entomological notes *Agricultural Journal*, Suva, 1935, Vol. 8, No. 1, p. 32.
[*Levuana iridescens, Promecotheca reichei, Teleonemia lantanae, Tetrastichus giffardianus, Apanteles tirathabae, Nemeritis palmarum* and *Papuana huebneri* in Fiji Islands].

SMITH, Kenneth M. Plant viruses. (Methuen's Monographs on Biological Subjects). London, Methuen & Co. Ltd., 1935, IX + 107 pp., 11 figs. References, pp. 97-103.
[In this small book the aim of the author is to bring to the notice of workers in other branches of science, and particularly botanists and entomologists, some of the more interesting and important facts of the study of plant viruses].

SOONG, Chih-Chieng. Notes on the morphology and habits of the different stages of *Ceracris kiangsu* Tsai in Hunan (Orth.). *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 10, pp. 191-199.
[In Chinese, with title also in English].

SOYER, D. La chenille enrouleuse des feuilles du cotonnier, Sylepta derogata Fab. *Bulletin Agricole du Congo Belge*, Bruxelles, 1935, vol. XXVI, n° 4, p. 406-498, fig. 130-131.

SPAULDING, Perley, GRANT, T. J., and AYERS, T. T. Investigations of Nectria diseases in hardwoods of New England. *Journal of Forestry*, Washington, D. C., 1936, Vol. 34, No. 2, pp. 169-179, fig. 1. References, pp. 178-179.

STRAIB, W. Untersuchungen über erbliche Blattnekrosen des Weizens. *Phytopathologische Zeitschrift*, Berlin 1935, Bd. VIII, Heft 6, S. 541-587, Abb. 1-10. Zitierte Literatur, S. 584-587.

STRAKA, V., a BLATTNÝ, Ctibor. Poznámky z protimandelinkové konference v Bruselu. - Remarques ayant trait à la Conférence contre le doryphore de la pomme de terre tenue à Bruxelles. *Věstník Československé Akademie Zemědělské*, Praha 1936, roč. XII, čís. 3, str. 207-208.

[In Czech, with title also in French. — See this *Bulletin*, 1936, No. 4, pp. 77-78].

SUBRAMANIAM, L. S. Some new seedling diseases of sugarcane. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. I, pp. 11-16, pls. IX-XI References, p. 16.

[*Helminthosporium halodes*, *H. tetramera*, *Pythium graminicolum*].

TARTAKOSWKY HENKER, Sergio. El chancro del manzano. *Anales de la Facultad de Agronomía y Veterinaria*, [Santiago (Chile)], 1934, segundo trimestre, págs. 63 a 110, figs. 1-14. Bibliografía, pág. 110.

[*Nectria ditissima* (*N. galligena*)].

TAUBENHAUS, J. J., and CHRISTENSON, L. Dean. Insects as possible distributors of Phymatotrichum root rot. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 1, pp. 7-9.

[*Phymatotrichum omnivorum*].

THOMSON, J. R. *Cylindrosporium concentricum* Grev. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pt. II, pp. 123-132, figs. 1-8. References, p. 132.

[A fungus parasitic on cabbage leaves].

TOZZI CONDIVI, Nicola. Studio sulla coltivazione dell'anacio e lotta contro la Depressaria bantiella (Rocci). *Nuovi Annali dell'Agricoltura*, Roma, 1936, anno XVI, n. 1, pp. 41-62, 6 figg.

TSENG, Shen, and TAO, Chia-chu. A list of the Aphididae of China with descriptions of four new species. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, Nos. 7-9, pp. 120-176, figs. 1-3. Literature, pp. 170-175.

[*Micraphis takahashii* n. sp. on *Artemisia annua*; *Macrosiphoniella cayratiae* n. sp. on *Cayratia japonica*; *Chaitophorus clarus* n. sp. and *Chait. shantungensis* n. sp. on *Populus simonii*].

TSUI, P. T., YANG, Juhwa, & LIN, Cheng. Wheat and barley loose smut in Hanchow during 1935. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 2, pp. 30-31.

[In Chinese, with title also in English. — *Ustilago tritici*, *U. nuda*]

UPPAL, B. N., KAMAT, M. N., and PATEL, M. K. A new variety of *Oidiopsis taurica*. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. I, pp. 110-115, fig. 1, pl. XX. Reference, p. 115.

[*O. taurica* var. *macrospora* n. var. on *Dolichos lablab*. Description in English].

UVAROV, B. P. The oriental migratory locust (*Locusta migratoria manilensis*, Meyen 1835). *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 1, pp. 91-104, figs. 1-2. References, pp. 103-104.

UVAROV, B. P., and HAMILTON, A. G. Phase variation and rate of development in the Algerian race of the migratory locust (*Locusta migratoria*, L.). *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 1, pp. 87-90. References, p. 90.

VANDERWALLE, R. Quelques caractères physiologiques de différentes souches de *Verticillium* du groupe *Dahliae*. *Bulletin de l'Institut Agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1935, tome IV, nº 4, p. 378-398, 1 fig. Bibliographie, p. 395-397.
[With titles and summaries in Flemish, German and English].

VENKATARAYAN, S. V. The biology of Ganoderma lucidum on areca and cocoanut palms. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 2, pp. 153-175, figs. 1-6. Literature cited, pp 173-175.

VOLOSKY Y., Dora. Las moscas de las frutas. *Anales de la Facultad de Agronomia y Veterinaria*, [Santiago (Chile)], 1934, tercer trimestre, págs. 115 a 195. Referencias, págs. 193 a 195.
[*Anastrepha* spp., *Ceratitis capitata*, *Dacus* spp., *Rhagoletis* spp., *Epochra canadensis*, *Toxotrypana curvicauda*].

WAGER, Vincent A. Brown rot of tomato fruits due to *Phytophthora parasitica* Dast. *The South African Journal of Science*, Johannesburg, 1935, Vol. XXXII, pp. 235-237. Literature cited, p. 237.

WALDRON, L. R., [and] CLARK, J A Breeding rust - resistant spring wheats. *Science*, Lancaster, Pa., 1936, New Series, Vol. 83, No. 2144, pp. 106-108. [*Puccinia graminis*].

NOTES

Official Correspondents. — The Ministry of Agriculture of Spain, through the intermediary of the Spanish Delegate to the Permanent Committee of the International Institute of Agriculture, has communicated that the following have been nominated official correspondents of the Institute for all questions relative to plant protection in Spain.— Mr. Miguel BENLLOCH MARTÍNEZ, ' Ingeniero Agrónomo ', Director of the Central Station of Plant Pathology, Madrid; Mr Federico GÓMEZ CLEMENTE, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Burjasot, Valencia; Mr. Jaime NONELL COMAS, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Barcelona; Mr. José DEL CAÑIZO GÓMEZ, ' Ingeniero Agrónomo ' attached to the Central Station of Plant Pathology, Madrid; Mr. Aurelio RUIZ CASTRO, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Almería; Mr. Pedro URQUIJO LANDALUZE, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, La Coruña; Mr. Agustín ALFARO MORENO, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Zaragoza; Mr. Rafael BOHORQUEZ DOMÍNGUEZ, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Sevilla; Mr. Cándido DEL POZO PELAYO, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Santander, and Mr. Víctor MORENO MÁRQUEZ, ' Ingeniero Agrónomo ', Director of the Plant Pathology Station, Badajoz.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Further Contribution to the Study of the Disease Known as 'Podredumbre de las Raicillas' of Orange Trees †

The rot of orange rootlets ('podredumbre de las raicillas') first drew the attention of citrus growers in 1932, in the zone of Bella Vista, province of Corrientes.

The disease started in the southern part of the district of Bella Vista where exist many orchards of oranges grafted on stocks of bitter fruit. Certain of these orchards were 18 years old and in many cases showed symptoms of the disease, though it also was evident on plants 6 years old.

The rot, however, was first reported on sweet oranges, lemons or mandarin oranges grafted on stocks of bitter fruit. Afterwards it was observed on plants grafted with 'lima de Persia' and 'naranjo trébol'.

The increased diffusion of this disease seriously damaged the orchards of Bella Vista so that the Ministry of Agriculture installed a phytopathological laboratory in the National Nursery in this region where, for the last two years, the cause of the disease has been studied and also methods for preventing and controlling it.

The first manifestation of the disease is in the retarded development of the plant; the twigs are small and with short internodes, the size of the leaves is much smaller than usual and they are arranged in rosette form and fall away from the extremities of the branches towards the base. Many of the leaves appear to be chlorotic (with the principal and secondary ribs yellow and the intermediary parts green) and others spotted or attacked by foliocellosis (principal and secondary ribs green and intervening parts yellow), both symptoms being noticeable on the same plant. The branches, after losing the leaves, dry up by degrees and end by being covered with numerous black fructifications of the fungus *Colletotrichum gloeosporioides*, Penzig.

If the diseased plants bear fruit, this is reduced in size, is yellow and falls prematurely. The diseased plants clearly bear more fruit than the healthy trees though in no case does the fruit attain normal proportions. In numerous cases, also, may be observed a growth of the bud graft proportionally much greater than that of the stock and the plant afterwards begins to decline.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. Horacio A. Speroni, 'Ingeniero Agrónomo', Chief of the Plant Pathology Laboratory, Bella Vista, province of Corrientes, transmitted by the official correspondent of the Institute, Mr. Juan B. Marchionatto, 'Ingeniero Agrónomo', Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

The disease begins in the finest rootlets, only in very advanced cases does it appear on the secondary roots. The diseased rootlets show a dark bark, spreading very easily to the central plerome. In this state it is always possible to meet with bark tissues invaded by fungi and bacteria though these organisms, in numerous experimental tests, to not appear to behave as pathogenic.

Repudiating the possibility of it being a parasitic disease, studies were directed towards determining the influence of various soil factors in the appearance of the disease and it was verified that the rot of citrus rootlets is due to high acidity of the soil favoured by different factors which may summarised thus: (*a*) the disappearance of the lime and other neutralising bases as a consequence of heavy rains; (*b*) the undue use of fresh farm manure which is given to the plants without any process of preventive fermentation; (*c*) the addition of unsuitable manures (superphosphates, etc.); (*d*) the use of mud and residues of bogs and salt marshes with high acidity.

Chemical analyses of these soils showed the existence of an excess of iron and aluminium salts in relation to the other elements, and the behaviour of these salts, which may change the trivalent ions of hydrogen by the cations of basic salts resulting in two serious consequences: (1) unfavourable conditions produced by the concentration of hydrogen ions; (2) toxic effect of the iron and aluminium elements, which increase with the diminution of neutral action in the soils.

The harmful action effects primary the meristematic tissues which, in dying, open the way for the penetration of fungi and bacteria which live saprofitically in the soil.

Other factors, no less important, and which also favour the development of the rot of citrus rootlets have been evident in these soils, namely: excess of iron and nitrogen, the proximity of the impermeable subsoil, the lack of drainage, planting too deep, absence of green manures and exhaustion of the soil by repeated cropping.

Taking into account the cause of the disease and the multiple factors which favour its development, trials were made with a view to control and positive results were obtained using the following methods:—

(1) Use of injections of iron sulphate at the rate of 10 cm^3 and 10 % (or in crystals) and liming afterwards with 3 to 4 kilos of slaked lime per plant. This treatment gave results in 90 % of cases treated.

(2) Liming the plants at the rate previously indicated and watering same with a solution containing 250 to 300 grammes of iron sulphate at the rate of 20 litres per plant.

As a general treatment against the rot of citrus rootlets is recommended: drainage; liming at the rate indicated; suppression of fresh farm manure; planting on high ground; all work of cultivation in accordance with the principles recommended by technique.

Eritrea: Locusts *

During the months of May and June, 1936, no locust have been reported in the Colony.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

Below is a summary of the observations made during the month of March, 1936.

In respect of the infested areas, the locust situation of the Colony remains the same as reported in the previous communication, namely, extension of the infestation in the North, the South widely infested, the regions of the Zambesi considerably infested.

During the month more than 1 593 hopper bands were destroyed by mechanical and chemical means. The control continues in the areas infested.

The existence, in certain regions, of locust destroying birds has greatly contributed towards reducing the density of the bands.

The beginning of the appearance of a disease is causing mortality among locusts and if the humid conditions develop their effect on increase of the disease will favour the extermination of the insects.

Southern Rhodesia: Locust Invasion, 1932-36 §

Monthly Report No. 42. May, 1936.

During May the Red Locust (*Nomadacris septemfasciata*, Serv.) has been present in the colony mainly in the hopper stage.

The following districts have included hopper infested localities, namely:— Chibi, Mazoe, Salisbury, Martley and Charter.

Hoppers were present up to the end of the month in some localities.

From the 19th flying swarms were reported in the districts of Mtoko, Ndanga and Chibi - the first mentioned swarms having come from Portuguese East Africa.

Every effort has been made to reduce the hoppers to a minimum in all accessible localities and few winged swarms are expected to develop within the colony.

On the whole the outlook is very hopeful.

The present swarm cycle of the species appears to be at a low ebb in this part of Africa.

---

* Communication from the official correspondent of the Institute, Dr. Rolando GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

† Communication from Mr. JÚLIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the 'Repartição Tecnica de Agricultura' of the Colony.

§ Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Algeria. * — By Decree of the Governor General, dated 28 April, 1936, imports, by land, into Algeria of plants, plant products intended for cultivation and cut flowers originating from Tunis, will be carried out only by the custom-houses of Lacroix, Ghardimaou and Rhilane and under the following conditions:—

The consignments should be accompanied by a copy of the bill of lading or, when they do not originate from an establishment subject to State control, a declaration by the sender stating the nature, the number and variety of the objects concerned and, in all cases, a certificate of phytopathological inspection.

The consignments will travel under cover of unguaranteed receipts carrying, in addition to the obligation to conform to the custom regulations, the engagement to present to the agents of Plant Protection Service the wagons or packages of plants sealed by the custom-house on their entry into Algeria, with a view to guaranteeing their identity.

The consignments, at the choice of the importers, will be sent by the custom-house to Bona, Philippeville, Constantine, Bougie, Algiers, Mostaganem, Marnia or Oran, to be examined by the local agent of the Plant Protection Service under the conditions provided for by the Decree of 14 February, 1922, on the phytosanitary police in Algeria.

The fact, in respect of the importers, of not presenting the consignments to the agents charged with sanitary ispection will result in forfeiture, in the future, of the right to introduce plants and plant products into Algeria and this without prejudice to the penalties provided for in Article 471, 13° of the Penal Code.

The consignments refered to in the present Decree, which circulate without documents and without being sealed, will be seized and impounded in conformity with the dispositions contained in article 11 of the Decree of 14 February, 1922, without prejudice to the other penalties provided for in that Decree.

Germany. — According to the Ordinance of 7 March, 1936, relative to the officials seals, the Service of phytosanitary inspection will adopt, as from 1 October, 1936, a single seal which will bear the name and the emblem of the country above the word ' Pflanzenbeschau '. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1936, Bd. VIII, Nr. 4, S. 102, 1 Abb.).

⁂ An Ordinance of 20 April, 1936, relative to the protection of natural sites, draws attention, *inter alia*, to the fact that the use of egg shells filled with phosphoric preparations for the control of rooks and magpies, is not permitted without special precautionary measures. (*Ibid.*, S. 96-99).

---

* Communication from the official correspondent of the Institute, Mr. MARCEL DELASSUS, Chief Inspector of the Service of Plant Protection and Phytopathological Inspection, Government General of Algeria, Algiers.

⁂ By Ordinance of the Corporation of Horticulture and Viticulture, dated 22 April, 1936, relative to the control of the needle cast of Douglas fir [*Rhabdocline pseudotsugae*], it is forbidden to cultivate, in nurseries and horticultural undertakings, all forms of *Pseudotsuga taxifolia* var. *glauca*. (*Nachrichtenblatt für den Deutchen Pflanzenschutzdienst*, Berlin, Anfang Mai 1936, 16. Jahrg., Nr. 5, S. 55).

⁂ By Decree of 6 May, 1936, modifying the provisions in force relative to the use of violent poisons, it is forbidden to use mobile disinfection chambers unless for the disinfection of consignments of vegetables. The Ministers of Agriculture and of the Interior will establish a mutual agreement on the rules to be followed in this respect. (*Reichsgesetzblatt*, Teil I, Berlin, 15. Mai 1936, Nr. 49, S. 444).

⁂ The Ordinances of 6 and 20 May, 1936, referring to the application of the measures concerning the use of very poisonous preparations, establish that the use of travelling disinfection chambers is prohibited except in the case of disinfection of consignments of plants.

In respect of the treatment of vines with arsenical preparations [see this *Bulletin*, 1935, No. 7, p. 157] the use of preparations in powder form after 30 June is forbidden. (*Amtliche Pflanzenschutzbestimmungen*, 1. Juli 1936, Nr. 4, S. 99-100).

Germany (Lübeck). — By Police Ordinance of 30 May, 1936, eradication of thistles is rendered compulsory and should be undertaken each year and continued up to 15 July. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1936, Bd. VIII, Nr. 4, S. 102).

Germany (Oldenburg). — By Decree of 21 April, 1936, concerning the prevention of the spreading of *Galinsoga parviflora* ('Franzosenkraut'), the control of this weed is made compulsory. The provisions are similar to those adopted by the Free City and State of Lübeck by Police Ordinance of 19 March, 1935 [see this *Bulletin*, 1935, No. 7, p. 157]. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1936, Bd. VIII, Nr. 4, S. 103).

⁂ By Decree of 9 May, 1936, the establishments for clearing and disinfecting seeds are subjected to official supervision.

The provisions are, in general, similar to those adopted by Decree of 4 June, 1934, in Prussian Saxony [see this *Bulletin*, 1934, No. 11, p. 248].

Owners of public seed cleaning establishments are obliged to declare the fact to the authorities of the district and to apply for an authorisation. The authorisation will be granted only to establishments equiped with disinfection installations.

Owners who have received the official authorisation should put up a special notice in their premises, the model of which is given in an appendix to this Decree.

A Notification of the same date, concerning the application of the present Decree, fixes, *inter alia*, the duties to be payed by owners of these establishments in order to obtain the official authorisation. (*Ibid.*, S. 103-107).

Germany (Prussia). — By Police Ordinance of 22 May, 1936, relative to the control of asparagus diseases and pests, provisions corresponding to those already adopted in the province of Hanover [see this *Bulletin*, 1935, No. 2, pp. 34-35] have been introduced. The aerial parts of the asparagus plants should be cut down and burnt before 30 November, the ends of asparagus stalks which remain in the fields should be removed in the spring before 30 April. It is proposed to form, in the communes where the area cultivated with asparagus exceeds 1 hectar, commissions of persons interested who will assist the police authorities in carrying out the control measures. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1935, Bd. VIII, Nr. 4, S. 107-108).

Germany (Thuringia). — The Notification of 31 March, 1936, concerning the exportation of plants, fixes the duties that should be payed for the certificate of health and origin and those which are required for inspection by the officials of the Plant Protection Service. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1936, Bd. VIII, Nr. 4, S. 108-109).

⁂ By Notification of 15 June, 1936, concerning the control of horticultural and botanical establishments, nurseries and gardens which are officially recognised as corresponding to the conditions established by the International Phylloxera Convention of Berne, the Central Plant Protection Station, Jena is entrusted with the supervision which should be exercised for the first time at the request of those interested and, afterwards, regularly every three years. (*Ibid.*, S. 109-111).

England and Wales. — With the object of preventing the introduction of the cherry fruit fly [*Rhagoletis cerasi*] the Importation of Raw Cherries Order of 1936, dated 29 April, 1936 contains restrictions on importation of these fruits grown in Spain, France and Germany. (*Statutory Rules and Orders, 1936, No. 384. Destructive Insect and Pest, England. The Importation of Raw Cherries Order of 1936. Dated April 29, 1936.* London, 1936, 4 pp.).

Argentine Republic. — The Decrees Nos. 77.115 and 77.116 of 22 February, 1936, confirm the provisions contained in the Decrees Nos. 74.281 and 74.335 of 27 December, 1935 [see this *Bulletin*, 1936, No. 6, p. 125]. (*Boletin Oficial de la República Argentina*, Buenos Aires, 15 de mayo de 1936, año XLIV, núm. 12.563, pág. 564).

Australia (Commonwealth of). — By Quarantine Proclamation No. 14P of 25 March, 1936 modifying the Quarantine Proclamation No. 9P [see this *Bulletin*, 1936, No. 7, pp. 153-154], is prohibited the importation into Australia of all plants or parts of plants (including the fruit but exempting the seeds) of the suborder or tribe Pomeae of the order Rosaceae which were grown in any country in which pear blight or fire blight (*Bacillus amylovorus*) exists. The apples grown in districts in New Zealand in which fire blight does not exist may be imported subject to the conditions prescribed in the Regulations. (*Commonwealth of Australia Gazette*, Canberra, 20th March, 1936, No. 31, p. 516).

Australia (Territory of Norfolk Island). — The Ordinance No. 9 of 1936, dated 18 March, 1936 and which may be cited as the Noxious Weeds Ordinance 1936, amends the Noxious Weeds Ordinance 1916. (*Commonwealth of Australia Gazette*, Canberra, 19th March, 1936, No. 30, pp. 471-472).

Belgium. — With a view to preventing the spread of the Colorado beetle (*Leptinotarsa decemlineata*) it is forbidden, by Ministerial Decree of 18 May, 1936, to transport haulms of potatoes for any reason or utilisation whatsoever. (*Moniteur Belge*, Bruxelles, 30 mai 1936, 106ᵉ année, nº 151, p. 4023).

⁂ By Ministerial Decree of 20 May, 1936, the importation into Belgium of fresh cherries originating from Germany, Spain, France and Italy, is authorised on condition that, after examination by the Special Phytopathological Service of Belgium at the expense of the importers, the consignments are ascertained to be free from cherry fruit fly (*Rhagoletis cerasi*).

Importation may only be carried out by the custom-houses of Erquelinnes, Montaleux (Mouscron), Montzen, Antwerp (4th Bureau) and Brussells (1st and 3rd Bureaux).

Consignments not recognised as being free from *Rh. cerasi* by the custom-houses of Erquelinnes, Montaleux (Mouscron) and Montzen will be returned.

Consignments not recognised as being free from *Rh. cerasi* by the custom-houses of Antwerp and Brussells will be burnt at the expense of the importer.

All producers or holders of cherries who observe the presence of *Rh cerasi* in their orchards or warehouses are obliged immediately to make a declaration to that effect to the burgemaster of the commune who will inform the Minister of Agriculture by telegramme. (*Ibid.*, 4 juin 1936, nº 156, p. 4101).

Chile. — By Decree No. 226 of 31 March, 1936, cotton seed imported for oil extraction or unginned cotton, also the receptacles and packing containing same, if they come from regions were the pink cotton bollworm (*Platyedra gossypiella*) exists, should be fumigated or treated with heat before disembarkation in order to kill all insects contained in the consignment. The phytopathological authorities of the exporting country will state, in the health certificate which should accompany the consignment, that this disinfection has been carried out. (Art. 1).

In cases where it is ascertained that living insects are contained in the seed on its arrival in the country in spite of the fact that it has been expedited in conformity with the dispositions indicated in the above mentioned article, the consignement should be fumigated and the operation commenced within 24 hours following disembarkation, the locality where this takes place being situated at the shortest distance possible from the wharf. If the fumigation cannot take place within the period required and under the above mentioned conditions, the Phytopathological Service will prohibit the disembarkation of the consignment or will have it destroyed 24 hours after disembarkation.

If the certificate mentioned in Art. 1 cannot be obtained, the consignment should be fumigated on board before disembarkation in a Chilian port for at least 12 hours. If the treatment is not efficacious, it should be repeated either on board or in a lighter or barge and the disembarkation of the consignement will not be authorised so long as the presence of living insects is determined. Fumigation on board is not compulsory on condition that it is carried out on lighters or barges and that discharging on these lighters or barges and fumigation take place at a distance of at least 500 metres from the coast. As in the preceding case, the consignment cannot be landed so long as the presence of living pink cotton bollworms or other insects is determined (Art. 3).

Consignments arriving by land, if not accompanied by the certificate of fumigation mentioned in Art. 1, will be sent back to the country of origin within a minimum period of time which will be fixed by the Phytopathological Service, or destroyed if not returned within the period fixed. (Art. 4).

In all cases the seed should be utilised immediately after arrival and should be given precedence over all others The preparation of this seed should not be suspended until the total quantity has been treated. (Art. 5).

The above mentioned measures are not required for seed coming from countries where the pink cotton bollworm does not exist; the seed will be subject to the general dispositions relative to the importation of seeds. In this case, it should be stated on the accompanying certificate that the pink bollworm does not exist in the region of origin. (Art. 6).

The health certificate accompanying the cotton seed intended for oil extraction coming from regions where the ' arrebiatado ' (*Dysdercus* sp.) exists should clearly specify that the consignment does not contain this insect. If the insect does not exist in the country, the fact should be noted on the certificate. (Art. 7).

The seed will be examined on board, at the port of destination, by the Phytopathological Service. (Art. 8).

If the presence of living *Dysdercus* is determined, the dispositions contained in Art. 2 will be applied. (Art. 9).

Unginned cotton imported from regions where the pink cotton bollworm or *Dysdercus* exists, should conform to the conditions established in Articles 1, 2, 3, 4 and 5. (Art. 10).

The importation of cotton seed will not be permitted unless contained in sacks which are sufficiently strong to resist being opened or torn during transport or in the course of charging or discharging. Discharging from torn sacks will be prohibited. (Art. 11).

It is forbidden to import seeds for sowing coming from regions where the pink cotton bollworm exists and this seed will be subject to all the dispositions indicated in the present Decree. (Art. 12).

Samples of no value arriving by post should only conform to the rules established in Art. 3 of the General Regulation of the Law of Phytosanitary Police. (Art. 13).

The Decree No. 1,031 of 30 September, 1935 [see this *Bulletin*, 1936, No. 5, p. 103-104] is revoked. (Art. 14). (*Diario Oficial de la República de Chile*, Santiago, 25 de abril de 1936, año LIX, núm. 17,452, págs. 1234 y 1235).

Belgian Congo. — By Decree of the Commissioner of the province of Coquilhatville, No. 41/Agri., of 2 March, 1936, the disinfection of cotton seed, to be sown during the 1936-1937 season, is obligatory in all cotton factories in the Congo-Ubangi district, the apparatus now in use to be adopted.

The disinfection must be effected at the same time as ginning. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 10 avril 1936, 25$^{\text{me}}$ année, nº 7, p. 161).

⁂ By Ordinance of the Governor General, No. 38/Agri., dated 9 March, 1936, the dispositions of Ordinance No. 144 bis/Agri., of 31 October, 1935 [see this *Bulletin*, 1936, No. 5, p. 105], relative to the cultivation, purchase and trade of cotton in the free zones, are applicable to certain regions of the territory of Luisa. (*Ibid.*, 25 March, 1936, No. 6, p. 118-119).

⁂ By Ordinance of the Governor General, No. 38 bis/Agri., of 11 March, 1936, the dispositions of the Ordinance No. 144 bis/Agri., of 31 October, 1935, are applicable to a part of the territory of Banningville. (*Ibid.*, p. 119-120).

Scotland. — For the prevention of the introduction of the cherry fruit fly [*Rhagoletis cerasi*] the Importation of Raw Cherries (Scotland) Order of 1936, dated 9 May, 1936, contains restrictions on importation of these fruits grown in Spain, France and Germany. (*Statutory Rules and Orders, 1936, No.* $\frac{421}{S.\,16}$. *Destructive Insect and Pest, Scotland. The Importation of Raw Cherries (Scotland) Order of 1936. Dated May 9, 1936.* London, 1936, 4 pp.).

Spain. — By ' Orden ' No. 78 of 3 April, 1936, a list is given of the countries which have ratified or adhered to the International Phylloxera Convention and final Protocol of 3 November, 1881, and the Declaration of 15 April, 1889. (*Gaceta de Madrid*, 7 abril 1936, año CCLXXV, tomo II, núm 98, pág. 218)

France. — By Ministerial Decree of 3 April, 1936, the provisions of the Ministerial Decree of 28 May, 1924, fixing the conditions under which may be forwarded potatoes, tomatoes and aubergines, originating and coming from foreign countries where the Colorado beetle [*Leptinotarsa decemlineata*] is non-existent and imported by the port of Bordeaux, are applicable to importations of these products by all the ports situated in the zone infested by the Colorado beetle or in a zone of protection. This dispositions are also applicable in railway stations on terrestrial frontiers situated in the said zones and where transshipment of merchandise is unavoidable on account of a difference in the width of the permanent way. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 15 avril 1936, année 1936, nº 8, p. 168).

Guatemala. — A Circular of the Direction General of Agriculture to the Departmental Political Chiefs, dated 5 February, 1936, prescribes the plan of control of the American coffee disease (*Stilbum flavidum*). (Secretaría de Agricultura. *Revista Agrícola*, Guatemala, 29 de febrero de 1936, vol. XIII, núm. 10, págs. 610 a 612).

Italy. — By Law No. 828 of 16 April, 1936, the Royal Decree-Law No. 2262 of 5 December, 1935 [see this *Bulletin*, 1936, No. 2, p. 33] relative to the control of ' mal secco ' of citrus plants [*Deuterophoma tracheiphila*] in Sicily, has been made a Law. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 18 maggio 1936, anno 77°, n. 115, p. 1602).

⁂ An Interministerial Decree of 30 April, 1936, establishes the contributions to be granted by the State to persons interested in the control of citrus scale insects. (Ministero dell'Agricoltura e delle Foreste. *Bollettino Ufficiale*, Roma, 16 giugno 1936, anno VIII, n. 12, pp. 552-554).

⁂ By Ministerial Decree of 12 May, 1936, the Ministerial Decree of 1 April, 1936, relative to the compulsory control of the olive fly [*Dacus oleae*] in certain communes of the province of Messina [see this *Bulletin*, 1936, No. 6, p. 136] is revoked. (*Ibid.*, 1° giugno 1936, n. 11, p. 491).

⁂ By Ministerial Decree of 27 May, 1936, a Commission has been appointed charged with proposing the concession of contributions by the State in favour of owners whose citrus plantations have been subjected to treatment by hydrocyanic acid for the compulsory control of scale-insects of citrus trees during the season 1936, in conformity with the provisions contained in the Inter-Ministerial Decree of 30 April, 1936. (*Ibid.*, n. 12, p. 554).

⁂ By Royal Decree No. 1153 of 28 May, 1936, the Italian Entomological Society, with headquarters in Genoa, has been recognised as a moral entity and its statutes have been approved. (*Gazzetta Ufficiale del Regno di Italia*, Roma, 25 giugno 1936, anno 77°, n. 146, p. 2054).

⁂ By Law No. 1221 of 28 May, 1936, has been made Law the Royal Decree-Law No. 510 of 9 March, 1936 authorising the Ministry of Agriculture and Forests to contribute to the expenditure incurred in the control of scale-insects of citrus trees [see this *Bulletin*, 1936, No. 6, p. 135]. (*Ibid.*, 2 luglio 1936, n. 151, p. 2130).

⁂ With a view to preventing the spread of ' mal secco ' disease of citrus [*Deuterophoma tracheiphila*] it is forbidden, by Ministerial Decree of 29 May, 1936, to export from Sicily plants or parts of plants of lemon, grapefruit and citron. (*Ibid.*, 16 giugno 1936, n. 138, p. 1951).

⁂ By Ministerial Decree of 31 May, 1936, a competition has been opened, with a single prize of 5000 lire, for the preparation of a product, not yet on the market, with a flower basis or extract of flowers of pyrethrum [*Chrysanthemum cinerariaefolium*], for use in the control of insects harmful to cultivated plants. (*Ibid.*, 10 luglio 1936, n. 158, pp. 2269-2270).

⁂ By Ministerial Decree of 5 June, 1936, the commune of Colli del Tronto, in the province of Ascoli Piceno, has been declared infested with grape phylloxera. (*Ibid.*, 18 giugno 1936, n. 140, p. 1982).

⁂ By two Ministerial Decrees of 20 June, 1936, the commune of Palombara Sabina, in the province of Rome and the commune of Offida, in the province of Ascoli Piceno, have been declared infested by grape phylloxera. (*Ibid.*, n. 151, p. 2141).

Morocco (French Zone). — A Decree of the Director of Waters and Forests, dated 16 March, 1936, authorises the destruction of wild boars causing great damage to the crops in the circle of Ouezzane. (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 27 mars 1936, XXV^e année, n° 1222, p. 381).

⁂ By Vizierial Decree of 17 March, 1936 (23 hija 1354) syndical associations for the control of plant parasites may be formed with a view to controlling the following parasites:—

Scale insects of fruit trees;
Shot-hole of stone fruits (*Clasterosporium carpophilum*, Aderh.);
Brown rot (*Schlerotinia cinerea*, Schrot.);
Peach leaf curl (*Exoascus deformans*, Berk.).

The associations may also undertake so-called 'winter' treatments of deciduous fruit trees. (*Ibid.*, 3 avril 1936, n° 1223, p. 405).

⁂ A Decree of the Director General of Agriculture, dated 19 March, 1936, establishes the following:—

Art. 1. — Empty used sacks may be imported, apart from the ports and posts designated in Article 1 of the Decree of 31 March, 1933 [see this *Bulletin*, 1933, No. 6, p. 131], by the ports of Rabat, Mazagan, Safi and Mogador, whenever the total weight of the lots to be inspected amounts to 20 quintals. The inspection should be carried under the express condition that the importers interested bear the charges incurred in the costs of transport, retention at the port and costs of moving the merchandise, estimated according to the official tariffs then in force by the inspector of plant protection charged with sanitary inspection.

When fumigation or disinfection is ordered by the inspector of plant protection, the lots recognised to be contaminated are, according to the wishes of the consignee, returned or sent by sea to the ports of Casablanca or Port-Lyautey.

Art. 2. — Empty used sacks may be imported by the frontier post of Martimprey on condition that the inspection of these lots is carried out at the time of the plant protection inspector's visit or that the importer bears the costs of moving the material, established at 75 francs.

When fumigation or disinfection is ordered by the inspector of plant protection, the lots recognised to be infected are, according to the wishes of the consignee, returned or sent through Algerian territory, to the frontier-post of Oujda.

Art. 3. — The Chief of the Plant Protection Service is entrusted with the execution of the present Decree.

Art. 4. — The Decree of 15 November, 1935 [see this *Bulletin* ,1936, No. 1, pp. 11-12], regulating the importation into the French Zone of the Sherifian Empire of empty used sacks, is revoked. (*Ibid.*, n° 1222, p. 380).

⁂ By another Decree of the Director General of Agriculture, dated 26 March, 1936, the treatments to be carried out by the syndical associations for the control of plant parasites may be selected from among the following:—

(*a*) Against scale insects of citrus: fumigation with hydrocyanic acid; sprayings with mineral oil emulsions; sprayings with sodium resinate.

(*b*) Against scale insects of deciduous fruit trees during the resting period: sprayings with anthracene oil emulsion; sprayings with mineral oil emulsion;

(*c*) Against shot-hole of stone fruits, brown rot and peach leaf curl: sprayings with Bordeaux mixture, copper oxychloride or lime sulphur.

(*d*) For the so-called ' winter ' treatments: anthracene oil emulsion or colouring matters.

The characteristics of these products should be as follows:—

(*a*) Hydrocyanic acid should be produced either by the action of sulphuric acid on sodium cyanide, or by powdering calcium cyanide, or by gasification of liquid hydrocyanic acid.

(*b*) Mineral oil should show a viscosity of 200° to 400° Barbey at a temperature of 35° C. and an unsulfonated residue above 80°.

(*c*) Sodium resinate should contain from 45 to 50 % of total resin, of which 20 to 25 % should be combined resin and 15 to 30 % free sodium carbonate.

(*d*) Lime sulphur: the concentrated lime sulphur should contain a proportion of 10 of lime to 20 of sulphur and, if in the liquid state, should have a minimum density of 1.200.

(*e*) Copper sulphate should contain at least 25 % of metallic copper.

(*f*) Copper oxychloride should contain at least 16 % of metallic copper.

(*g*) Bordeaux mixture: when already prepared Bordeaux mixture is used, it should contain at least 2 kilos of copper sulphate and 3 kilos of pure lime to 100 litres of water.

(*h*) Anthracene oil should contain at least 50 % of anthracene oil and at the most 2 % of phenols and 4 % of organic bases. (*Ibid.*, n° 1223, p. 405).

⁂ By Decree of the Director of Waters and Forests, dated 8 April, 1936, the destruction of wild boars is authorised in the territory of the post of civil control of El-Kelâa-des-Slès. (*Ibid.*, 17 avril 1936, n° 1225, p. 462).

⁂ A Decree of the Director of Waters and Forests, dated 15 April, 1936, authorises the destruction of rabbits and wild boars, causing great damage to crops in certain zones of the annex of civil control of Marchand. (*Ibid.*, 24 avril 1936, n° 1226, p. 500).

⁂ A Decree of the Director General of Agriculture, dated 27 May, 1936, establishes, *inter alia*, that all exported fresh fruit should be of sound quality. Fruit showing alterations due to parasitic or other origins will be eliminated as unfit for exportation.

Dry fruit exported should be of sound quality, without showing signs of internal or external parasites. (*Ibid.*, 5 juin 1936, n° 1232, p. 676-677).

Mexico. — By 'Acuerdo' of 4 February, 1936, the control of the cotton boll weevil [*Anthonomus grandis*] is regulated in the State of Sinaloa. (*Diario Oficial*), México, 28 abril de 1936, tomo XCV, núm. 50, págs. 4 y 5).

⁂ The 'Acuerdo' of 4 February, 1936, regulates the control of the cotton boll weevil (*Anthonomus grandis*) in the Republic. (*Ibid.*, 16 de mayo de 1936, tomo XCVI, núm. 12, págs. 2 y 3).

⁂ The 'Acuerdo' of 11 March, 1936, authorises the inspectors and employees of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, to inspect the cotton crops in the frontier zone with a view to determining infestation by pests and also to supervise the measures for the control of same, including the sterilisation of seed, for which purpose they will examine and give their opinion on the plans for the sterilization apparatus. (*Ibid.*, 16 abril de 1936, núm. 40, págs. 3 y 4).

New Zealand. — By Order in Council of 1 April, 1936 silver poplar (*Populus nivea*) has been declared to be a noxions weed. (*The New Zealand Gazette*, Wellington, April 2, 1936, Numb. 27, p. 674).

Salvador. — The Decree No. 33 of 1 April, 1936, establishes preventive measures for the control of cotton pests. (*Diario Oficial*, San Salvador, 4 de abril de 1936, tomo 120, núm. 80, pág. 1165).

Sweden. — The Royal Decree No. 214 of 22 May, 1936, modifies the Royal Decree of 10 May, 1929, relative to measures to be taken with a view to the control of wart disease [*Synchytrium endobioticum*] of potatoes. (*Svensk författningssamling*, Stockholm den 4 juni 1936, nr 214, sid. 337-340).

Tunis. — A Decree of 28 September, 1935, establishes, *inter alia*, that tubers of potatoes originating from France are admitted for importation into Tunis, without a certificate of health and origin, from 15 October to 15 May of each year and that they should be free from earth, plant débris and should be contained in new packing (sacks, cases, barrels or baskets). (*Bulletin de la Direction des Affaires Economiques*, Tunis, 4ᵉ trimestre 1935, XXXIXᵉ année, n° 163, p. 309).

⁂ A Decree of 4 November, 1935, fixes the sale price to farmers of powder for hunting for use in the protection of crops against noxious animals. (*Ibid.*, p. 312).

RECENT BIBLIOGRAPHY

ALBEN, A. O., and **BOGGS**, Hugh M. Zinc content of soils in relation to pecan rosette. *Soil Science*, Baltimore, Maryland, U. S. A., 1936, Vol. 41, No. 5, pp. 329-332. References, p. 332.

ARNAUD, G., et **BARTHELET**, J. Le nérume ou pourriture noire des châtaignes (*Sclerotinia pseudo-tuberosa* et *Rhacodiella Castaneae*). *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 121-146, fig. 1-10. Bibliographie, p. 144-146.

BAMBERG, R. H. Black chaff disease of wheat. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 6, pp. 397-417. Literature cited, pp. 416-417.
[*Bacterium translucens* var. *undulosum*].

BARTHELET, J. Recherches expérimentales sur les traitements des tavelures des arbres fruitiers et du mildiou de la vigne. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 103-119, pl. I-II. Bibliographie, p. 116-117.
[*Venturia pirina*, *V. inaequalis*, *Plasmopara viticola*].

BOCKMANN, Hans. Der gegenwärtige Stand der Forschungen über die Fusskrankheiten des Getreides. *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 6, S. 57-58.
[*Ophiobolus graminis*, *Cercosporella herpotrichoides*].

BONAVENTURA, G. Germinabilità dei semi di fava danneggiati dal Bruchus rufimanus Sch. *Bollettino del R. Istituto Superiore Agrario di Pisa*, Pisa, 1935, vol. XI, pp. 31-37.

BOUHÉLIER, R., et **FOURY**, A. Contribution à l'étude des appâts dans la lutte contre la cératite (*Ceratitis capitata* Wied.). *Revue de Zoologie agricole et appliquée*, Bordeaux, 1936, 35^e année, n^o 4, p. 49-63, pl. I.

BOUVIER, G. Une épidémie chez les sauterelles migratoires. Isolement d'un bacille pathogène. Essais de transmission de la maladie. *Annales de l'Institut Pasteur*, Paris, 1936, t. 57, n^o 1, p. 91-104. Bibliographie, p. 104.
[An organism, called by the Author ' bacille H ', has been isolated from *Locusta migratoria migratorioides* and has proved to be very virulent for the larvae of *Nomadacris septemfasciata* in the Belgian Congo].

BROOKS, Charles, and **McCOLLOCH**, Lacy P. Some storage diseases of grapefruit. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 5, pp. 319-351, figs. 1-9, pl. 1. Literature cited, p. 351.
[Descriptions are given for two forms of pitting and for scald, oleocellosis, browning of the oil glands, and watery break-down of grapefruit, *Citrus grandis*].

BRYANT, G. E. A new species of *Epitrix* (Halticinae) injurious to tobacco in Brazil. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 2, S. 114.
[*E. nicotianae* n. sp. Description in English].

CANONACO, A. Il seccume dei rametti di mandorlo in relazione ad alcuni micromiceti. *Rivista di Patologia Vegetale*, Pavia, 1936, anno XXVI, n. 5-6, pp. 145-164, 1 fig., 1 tav. Bibliografia, pp. 163-164.
[After having mentioned the different fungi which cause the withering of almond twigs the Author describes in detail *Phomopsis amygdalina* n. sp. obser-

ved by him as agent of the same disease in the region of Palermo. A Latin diagnosis is given of the new species].

Catoni, Giulio. La degenerazione della patata. *Atti del Primo Convegno Nazionale per l'Incremento della Produzione delle Patate*, sotto l'alto patronato di S. E. il Ministro dell'Agricoltura e delle Foreste, promosso dal Consiglio Provinciale dell'Economia Corporativa e dalla Cattedra Ambulante di Agricoltura, d'intesa colle Organizzazioni sindacali agricole. Como, 29-30 settembre 1935-XIII. Como, Lito-Tipografia Commerciale A. Noseda, 1935-XIV, pp. 82-106.

Chappellier, A. Essai de l'action, sur différents rongeurs, du *Bacillus typhi murium* cultivé dans des grains de seigle. (Nouveau procédé de culture du Service des virus de l'Institut Pasteur de Paris). Comparaison avec le virus en ampoules. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 341-348, 4 graphiques.

Chappellier, A., et **Raucourt**, M. Remarques sur la dissémination du doryphore en 1935. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 337-340.

Christie, J. R. Life history of Agamermis decaudata, a nematode parasite of grasshoppers and other insects. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No 3, pp. 161-198, figs. 1-20. Literature cited, pp. 197-198.

Chu, Vong-may, and **Woo**, Chan-tsi. Experiments on the control of cereal smuts by the hot-water treatment. *Agricultura Sinica*, Nanking, China, 1935, Vol. 1, No. 7, pp. 189-237, figs. 1-7, pls. 1-3. [Literature cited], pp. 222-224. [In Chinese, with title and summary in English — *Ustilago, Tilletia*].

Clayton, E. E. Water soaking of leaves in relation to development of wildfire disease of tobacco. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 4, pp. 239-269, figs. 1-9. Literature cited, pp. 268-269. [*Bacterium tabacum*].

Courtney, Wilbur D. An apparent natural transfer of the bulb or stem nematode from clover to the strawberry plant. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 607-609, figs. 1-2. [*Anguillulina dipsaci*].

Commins, George Baker. Phylogenetic significance of the pores in urediospores. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 2, pp. 103-132. Literature cited, pp. 130-132.

Ducomet, V., et **Diehl**, R. La galle verruqueuse de la pomme de terre (*Synchytrium endibioticum* [Schilb.] Perc.). Mise au point de la question de la résistance des variétés. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 57-79, cartes nos 1 et 2. Bibliographie, p. 78-79.

Dufrénoy, J. Méthodes statistiques appliquées à la Pathologie végétale. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 147-256, fig. 1-10. Bibliographie, p. 164, 216, 220-221, 252.

Dunlap, A. A. Seedling culture in sand to prevent damping off. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 278-284, fig. 1.

du Toit, P. J. Les dangers, pour le bétail, de la lutte contre les sauterelles. In: Rapport de la Conférence sanitaire panafricaine tenue à Johannesburg du 20 au 30 novembre 1935. *Société des Nations. Bulletin trimestriel de l'Organisation d'Hygiène*, Genève, 1936, vol. V, no 1, p. 174-175.

Elmer, O. H. Growth inhibition in the potato caused by a gas emanating from apples. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 8, pp. 609-626, figs. 1-7. Literature cited, p. 626.

FERRARIS, T[EODORO]. Seccume primaverile dei germogli di pioppo canadese. *La Rivista Agricola*, Roma, 1936, anno XXXII, fasc. 736, p. 223.
[*Venturia tremulae* on *Populus canadensis*].

FINCH, A. H. Zinc and other mineral constituents in relation to the rosette disease of pecan trees. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 5, pp. 363-376, figs. 1-4. Literature cited, pp. 375-376.
[A physiological disease].

FLEMING, Walter R., and BAKER, Francis E. The effectiveness of various arsenicals in destroying larvae of the Japanese beetle in Sassafras sandy loam. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 493-503, fig 1. Literature cited, p. 503.
[*Popillia japonica*].

FOËX, Et[ienne]. Etude expérimentale des piétins du blé au cours de la campagne 1934-1935. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. I, p. 1-11, fig. 1-2.
[*Cercosporella herpotrichoides, Ophiobolus graminis*].

FREAR, Donald E. H., and HODGKISS, W. S. Accuracy of the determination of lead and arsenic on apples. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 8, pp. 639-644. Literature cited, p. 644.

GILE, Philip L. The effect of different colloidal soil materials on the toxicity of calcium arsenate to millet. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 455-491, figs. 1-2. Literature cited, pp. 490-491.
[*Setaria italica*].

GIOELLI, F. Osservazioni sul "Pumilus medullae" V. e M. *Rivista di Patologia Vegetale*, Pavia, 1936, anno XXVI, nn. 3-4, pp. 85-87.
[See this *Bulletin*, 1936, No. 7, p. 161].

GODFREY, G. H. Control of soil fungi by soil fumigation with chloropicrin. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 246-256, fig. 1. Literature cited, pp. 255-256.

GOIDÀNICH, Gabriele. Il genere di Ascomiceti "Grosmannia" G. Goid. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1936, anno XVI, n. ser., n. 1, pp. 26-60, figg. 1-19, tav. I.
[Description of the genus *Grosmannia* including a new species (*Gros. serpens* G. Goid.) and *Ophiostoma* (*Ceratostomella*) *penicillatum*, *O.* (*C.*) *pini*, *O.* (*C.*) *ips*, also a description of the conidial forms *Scopularia serpens* G. Goid. n. sp., *S. penicillata* (Gros.) G. Goid. n. comb., *S. pini* G. Goid. n. sp. and *S. 'rumboldii* G. Goid. n. sp.
The fungi belonging to the genus *Grosmannia* are very active agents of wood discoloration].

GOIDÀNICH, Gabriele. Le alterazioni cromatiche parassitarie del legname in Italia. III. Colorazione rosa del legno di pioppo, causata da "Fusarium javanicum" Kds. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1936, anno XVI, n. ser., n. 1, pp. 65-68, fig. 1.

GOIDÀNICH, Gabriele. La leptonecrosi degli alberi da frutta ed il comportamento di alcune varietà americane. *L'Italia Agricola*, Roma, 1936, anno 73, n. 6, pp. 459-464, 6 figg.
[A non-parasitic disease attacking cherries, apricots and plums].

GOLDSWORTHY, M. C., and GREEN, E. L. Availability of the copper of bordeaux mixture residues and its absorption by the conidia of Sclerotinia fructicola. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 517-533, fig. 1. Literature cited, pp. 532-533.

Hadjinicolaou, J. Observations sur les rongeurs de Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 77-82.
[In Greek, with title and summary in French. — *Microtus* spp., *Crocidura leucodon*, *Apodemus* spp., *Epimys* spp., *Citellus citellus gradojevici*].

Hirt, Ray R. The progress of blister rust in planted northern white pine. *Journal of Forestry*, Washington, D. C., 1936, Vol. 34, No. 5, pp. 506-511, fig. 1. Literature cited, pp. 510-511.
[*Cronartium ribicola* on *Pinus strobus*].

Hoggan, Ismé A., and **Johnson**, James. Behavior of the ordinary tobacco mosaic virus in the soil. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 4, pp. 271-294. Literature cited, p. 294.

Holton, C. S. Origin and production of morphologic and pathogenic strains of the oat smut fungi by mutation and hybridization. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 4, pp. 311-317, fig. 1. Literature cited, p. 317.
[*Ustilago avenae*, *U. levis*].

Holton, C. S. Inheritance of chlamydospore characteristics in oat smut fungi. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 535-540.
[*Ustilago avenae*, *U. levis*].

Hopkins, J. C. F. Annual report of the senior plant pathologist for the year ending 31st December, 1935. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 6, pp. 413-421.

Hutchinson, W. G. A method for staining rust mycelium in woody tissues. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 293-294.
[*Peridermium*].

Isaakidès, C. A. Liste I des insectes et autres animaux nuisibles aux plantes cultivées et des insectes auxiliaires de la Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 2, p. 1-12.
[Compiled according to specimens studied at the Phytopathological Benaki Institute during the years 1931-1934].

Isaakidès, C. A. Le pouvoir attractif de quelques appâts pour la mouche des fruits. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 33-37.
[In Greek, with title and summary in French. — *Ceratitis capitata*].

Jack, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 41. April, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 6, p. 449.
[*Nomadacris septemfasciata*].

Jensen, James H. Studies on the origin of yellow-mosaic viruses. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 266-277, fig. 1. Literature cited, pp. 276-277.

Joessel, P.-H. Essais de traitements contre les maladies du melon en 1934. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 81-101, fig. 1-5.
[*Erysiphe cichoracearum*, *Colletotrichum lagenarium*].

Joessel, P.-H. Essais de traitements contre les maladies du melon (année 1935). *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. ser., tome II, fasc. I, p. 21-30, fig. 1-3.
[*Erysiphe cichoracearum*, *Colletotrichum lagenarium*]

Joessel, P.-H., et **Suau**, J. Produits mouillants ou adhésifs dans les traitements mixtes contre le carpocapse et la tavelure. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. I, p. 31-49.
[*Cydia pomonella*, *Venturia inaequalis*].

Johnson, James. Tobacco streak, a virus disease. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 285-292, figs. 1-3. Literature cited, p. 292.

Johnston, C. O. Reaction of certain varieties and species of the genus Hordeum to leaf rust of wheat, Puccinia triticina. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 235-245, fig. 1. Literature cited, p. 245.

Kalé, F. Résistance relative des blés au *Puccinia glumarum* Erikss. et Henn. dans la région versaillaise. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. I, p. 13-19, fig. 1. Bibliographie, p. 18-19.

Klinger, Heinz. Die insektizide Wirkung von Pyrethrum- und Derrisgiften und ihre Abhängigkeit vom Insektenkörper. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 2, S. 115-151, Taf. 2-3. Literaturverzeichnis, S. 146-150.

Kozikowski, Aleksander, i **Kuntze**, Roman. Szkodniki nasion jodły występujące w południowej Polsce. *Sylwan*, Lwów 1936, roc. LIV, nr. 1, str. 93-112, ryc. 1-5. Literatura, str. 111.
[In Polish, with title and summary in German — ' Die in Südpolen vorkommenden Tannensamenschädlinge '].

Kunkel, L. O. Immunological studies on the three peach diseases, yellows, rosette, and little peach. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 201-219, figs. 1-6. Literature cited, p. 219.
[Virus diseases].

Lindinger, L. Über einige Schildläuse des Berliner botanischen Gartens (*Coccidae*). *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 2, S. 153-155.
[Enumeration of 17 species several of which are new to the region].

Lombardi, M. *Galerucella* (*Pyrrhalta*) *viburni* Payk. (*Col. Chrys.*). *Bollettino della Società Entomologica Italiana*, Genova, 1936, vol. LXVIII, n. 5-6, p. 93.
[The larva of this beetle has been observed at Florence as noxious to *Viburnum tinus*].

Luchetti, G. Ulteriori esperienze sul rapporto tra reazione del terreno e clorosi delle piante. *Bollettino del R. Istituto Superiore Agrario di Pisa*, Pisa, 1935, vol. XI, pp. 1-9.

Miller, Julian H., and **Wolf**, Frederick A. A leaf-spot disease of honey locust caused by a new species of Linospora. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 2, pp. 171-180, figs. 1-2. Literature cited, p. 180.
[*Linospora gleditsiae* n. sp. on *Gleditsia triacanthos*. A Latin diagnosis of the new species is appended].

Miotto, G. La peronospora nei barbatellai. *Il Gazzettino Agricolo*, Padova, 1936, anno XIV, n. 27, p. [1], 2 figg.
[*Plasmopara viticola*].

Moreau, L., et **Vinet**, E. De l'amélioration et de la défense de la production fruitière. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 257-275, 1 graphique. Bibliographie, p. 275.
[*Epidiaspis piricola*, *Carpocapsa pomonella*, *Venturia pirina*].

Murphy, H. C. Effect of crown rust on the composition of oats. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 220-234, figs. 1-2. Literature cited, p. 234.
[*Puccinia coronata avenae*].

Paoli, Guido. Descrizione di alcune nuove specie di *Empoasca* (Hemipt. Homopt.) e osservazioni su specie note. *Memorie della Società Entomologica Italiana*, Genova, 1936, vol. XV, pp. 5-24, figg. 1-9. Bibliografia, pp. 23-24.
[*Empoasca barbystyla* n. sp. on plants not mentioned (Anglo-Egyptian Sudan and Uganda), *E. aequatorialis* n. sp. on *Phytolacca dodecandra* (Uganda), *E. viridigrisea* n. sp. on tomatoes (Queensland), *E. terrae-reginae* n. sp. on cotton (Queensland), *E. malayana* n. sp. on *Vigna catjang* (Federated Malay States), *E. bipunctata* Osh. on hemp (Italy), *E. libyca* De Berg. on grape vine (Cyrenaica, Spain), cotton (Tanganyika Territory, Anglo-Egyptian Sudan, Egypt), sugar cane (Egypt) and on undetermined plants (Eritrea), *E. formosana* Paoli on maize (Malacca).
On the subject of geographic distribution of *Empoasca* in Africa, the Author shows as reported in Uganda: *E. facialis* Jac. on *Dolichos* and *Canavalia ensiformis*; *E. dolichi* Paoli on *Arachis hypogaea*, *V. catjang*, *Gossypium* and *Dolichos*; *E. barbystyla* and *E. aequatorialis*. *E. facialis* and *E. dolichi* (on *Phaseolus* ?) have also been reported in Nigeria].

Parker, D. E. Chrysis shanghaiensis Smith, a parasite of the oriental moth. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 6, pp. 449-458, figs. 1-5. Literature cited, pp. 457-458.
[*Ch.* (*Pentachrysis*) *shanghaiensis*, a parasite of *Cnidocampa flavescens*].

Pasinetti, L[auro]. Studio sulla "bacteriosi del mais" da "Aplanobacter Stewarti" Smith, osservata per la prima volta in Italia. *Rivista di Patologia Vegetale*, Pavia, 1936, anno XXVI, nn. 3-4, pp. 61-84, figg. 1-2. Bibliografia, pp. 82-84.

Petri, L[ionello]. Rassegna dei casi fitopatologici osservati nel 1935. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1936, anno XVI, n. ser., n. 1, pp. 1-25, figg. 1-6.

Pieri, A[lfredo]. La moria dei peschi. II. *Note di Frutticoltura*, Pistoia, 1936, anno XIV, n. 7, pp. 109-115, figg. 18-19.
[See this *Bulletin*, 1936, No. 7, p. 165].

Poos, F. W., and **Elliott**, Charlotte. Certain insects vectors of Aplanobacter stewarti. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 8, pp. 585-608, figs. 1-13. Literature cited, p. 608.
[*Chaetocnema pulicaria*, *C. denticulata*, *Diabrotica duodecimpunctata*].

Raucourt, M., et **Trouvelot**, B. Les principes constituants de la pomme de terre et le doryphore. Réactions d'ordre sensitif chez la larve. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. I, p. 51-98, fig. 1-11.
[*Leptinotarsa decemlineata*].

Richter, H. Die Gelbsucht der Sommerastern. *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 7, S. 66-67, Abb. 1-3.
[A virus disease of *Callistephus chinensis* observed for the first time in 1935 also at Berlin].

Rumbold, Caroline T. Three blue-staining fungi, including two new species, associated with bark beetles. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 6, pp. 419-437, figs. 1-10.
[*Ceratostomella ips* on *Pinus* spp., and *Larix occidentalis* associated with *Ips emarginatus*, *I. integer* and *I. oregoni*; *C. pseudotsugae* n. sp. on *Pseudotsuga*

taxifolia and *L. occidentalis* infested with *Dendroctonus pseudotsugae*; *C. piceaperda* n. sp. on *Picea glauca* infested with *D. piceaperda*. The technical descriptions and Latin diagnoses of the two new species are appended].

Russo, Giuseppe. Segnalazione di nuove aree di distribuzione del Chetoptelio. *Bollettino della Società Entomologica Italiana*, Genova, 1936, vol. LXVIII, n. 5-6, pp. 93-94.
[*Chaetoptelius vestitus* injurious to *Pistacia lentiscus* (province of Salerno) and to *P. vera* (Trento)].

Sarejanni, J. A. Liste I des maladies des plantes cultivées et autres de la Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 1, p. 13-20.
[Compiled according to specimens studied at the Phytopathological Benaki Institute during the years 1931-1933].

Sarejanni, J. A. L'apoplexie des arbres fruitiers des environs d'Athènes. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 45-50. Bibliographie, p. 50.
[According to the Author the disease is caused in Greece by several animal and vegetable parasites].

Sarejanni, J. A. Sur le Sclerotinia de l'amandier. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 57-60. Bibliographie, p. 60.
[*Sclerotinia cinerea*].

Sarejanni, J. A. Le " mal secco " en Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 61-66. Bibliographie, p. 66.
[*Deuterophoma tracheiphila*].

Sarejanni, J. A. Notes phytopathologiques. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, pp. 67-76, 13 fig. Bibliographie, p. 70, 71, 74, 75.
[Contains:—
1. Un cas de stérilité de l'olivier.
[Due to a lack of water].
2. Une maladie d'enroulement de la tomate.
[The cause of this disease has not been definitely established].
3. Les septorioses du pistachier.
[*Septoria pistacina*, *S. pistaciae*].
4. Un Microsphaera sur Spartium junceum L.
[*Microsphaera bäumleri*].
5. La pourriture grise des boutons floraux de la vigne.
[*Botrytis cinerea*].
6. Un Phytophthora sur Saintpaulia ionantha.
[*Phytophthora cactorum* ?].
7. Du Polystigma ochraceum de l'amandier.
8. Des périthèces d'Uncinula necator (Schw.) Burr. en Grèce].

Sarejanni, J. A., et **Cortzas**, C. B. Note sur le parasitisme de Macrophomina phaseoli (Maubl.) Ashby. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 38-44. Bibliographie, p. 43-44.
[On cotton and other cultivated plants].

Sarejanni, J. A., et **Stamatini**, N. Le Phytophthora du tabac en Grèce. *Annales de l'Institut Phytopathologique Benaki*, Kiphissia (Athènes), 1935, année 1, fasc. 3, p. 51-56, 1 pl. Bibliographie, p. 55-56.
[*Phytophthora parasitica* var. *nicotianae*].

Schlenz, Paul. Frostschäden im Obstbau. Ursache, Vorhersage, Abwehr, Bekämpfung und Heilung. Wiesbaden, Rud. Bechtold & Comp., [1935], 59 S., 5 Abb.

Schwartz, Martin, und **Ludevig**, Karl. Der Gartendoktor. Schädlinge und Pflanzenkrankheiten ohne Vorkenntnisse erkennen und bekämpfen. Berlin, Verlag der Grünen Post, [1936], 116 S., 53 Abb.
[The object of this little manual is to enable persons uninstructed in the subject to 'recognise and control the diseases and pests of plants'.
The various diseases and pests are cited in alphabetical order, also the vegetables and fruit trees and the principal means of control. To each of the 406 words at the beginning of the line there corresponds a reference or explanatory note more or less long.
In this way the principal diseases and pests are reviewed and the best means of control are indicated. All scientific expressions have been avoided which might be difficult for the simple gardener to understand for whom the book is intended].

Seaton, H. L., and **Gray**, G. F. Histological study of tissues from greenhouse tomatoes affected by blotchy ripening. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 3, pp. 217-224, pls. 1-9. Literature cited, pp. 223-224.
[' Blotchy ripening ' is a disorder which affects greenhouse tomatoes that ripen in May, June and July, and is characterized by a failure of areas of the outer fruit (pericarp) to develop and color normally].

Selariès, P., et **Rohmer**, G. La maladie verruqueuse de la pomme de terre en Alsace. Recherches effectuées au Laboratoire de Russ. Biologie du parasite. Résistance des variétés. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 23-55, fig. 1-26. Bibliographie, p. 53-55.
[*Synchytrium endobioticum*].

Sibilia, Cesare. Determinazione della sessualità in alcune forme fungine. *Bollettino della R. Stazione di Patologia vegetale*, Roma, 1936, anno XVI, n. ser., n. 1, pp. 61-64, 1 fig.

Singh, Jenarine. Enfermedad negra de la raíz (*Rosellinia pepo*). *Boletín de la Asociación Venezolana de Productores de Cacao*, Caracas, Ven., 1936, año I, no. 2, págs. 21 a 35, 4 figs.
[*Sordaria macrospora*, *Melanospora damnosa* (?), *Sphaeroderma* 'with 4 spores', *Nectria sinopica*, *Sporormia* spp., *Pleospora herbarum*, *Pyrenophora trichostoma*].

Sirri, A. Contro la cuscuta. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 23, pp. 189-190.

Spradling, Mae. Penetration of Trichoderma lignorum into sapwood of Pinus taeda. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 541-546, figs. 1-3.

Sprague, Roderick, and **Johnson**, A. G. A new Pseudodiscosia. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 2, pp. 181-185, figs. 1-2. Literature cited, pp. 184-185.
[Description in English and Latin of *Pseudodiscosia avenae* n. sp. on *Avena sativa*].

STEINER, G. The status of the nematode Aphelenchus avenae Bastian, 1865, as a plant parasite. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 294-295, fig. 1.

STELLWAAG, F. Gesundes Obst durch planmässige Schädlingsbekämpfung. Zweite, umgearbeitete Auflage. Nürnberg, Verlag Obst-und Gartenbaubedarf Bayern, e. G. m. b. H., [1936], 115 S., 87 Abb.

STONE, Winona E. Growth, chemical composition, and efficiency of normal and mosaic potato plants in the field. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 4, pp. 295-309, figs. 1-8. Literature cited, pp. 308-309.

THORNTON, N. Les dangers, pour les êtres humains, de la lutte contre les sauterelles. In: Rapport de la Conférence sanitaire panafricaine tenue à Johannesburg du 20 au 30 novembre 1935. *Société des Nations. Bulletin trimestriel de l'Organisation d'Hygiène*, Genève, 1936, vol. V, nº 1, p. 173-174.

TITTA, G. Sopra la concia del seme di grano. *Bollettino del R. Istituto Superiore Agrario di Pisa*, Pisa, 1935, vol. XI, pp. 223-226.

TOMPKINS, C. M., RICHARDS, B. L., TUCKER, C. M., and GARDNER, M. W. Phytophthora rot of sugar beet. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 3, pp. 205-216, figs. 1-3, pl. 1.
[*Phytophthora drechsleri*].

TRAPP, George. A bacillus isolated from diseased plants of Aucuba japonica (Thunb.). *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 3, pp. 257-265, fig. 1.
[*Pseudomonas aucubicola* n. sp. Description in English].

TRAVERSO, G[iovanni] B[attista]. La difesa contro le malattie delle patate. *Atti del Primo Convegno Nazionale per l'Incremento della Produzione delle Patate*, sotto l'alto patronato di S. E. il Ministro dell'Agricoltura e delle Foreste, promosso dal Consiglio Provinciale dell'Economia Corporativa e dalla Cattedra Ambulante di Agricoltura, d'intesa colle Organizzazioni sindacali agricole. Como, 29-30 settembre 1935-XIII. Como, Lito-Tipografia Commerciale A. Noseda, 1935-XIV, pp. 57-64.

TROUVELOT, Bernard. Le doryphore de la pomme de terre (*Leptinotarsa decemlineata* Say) en Amérique du Nord. *Annales des Épiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., vol. I (1934-1935), p. 277-336, fig. 1-10. Bibliographie, p. 333-336.

TSAI, Pang-Hwa. Epidemiological experiments with the paddy borer (*Schoenobius bipunctifer* Walk.). I. The influence of temperature and relative humidity on oviposition and hatching. *Agricultura Sinica*, Nanking, China, 1935, Vol. 1, No. 9, pp. 273-317, figs. 1-19. Bibliography, pp. 314-317.
[In Chinese, with summary in English].

TSAI, Pang-Hwa, and CHANG, Yen-Nien. Experimental studies regarding the influence of temperature and relative humidity on the oviposition of the rice weevil (*Calandra oryzae* L.). *Agricultura Sinica*, Nanking, China, 1935, Vol. 1, No. 6, pp. 175-183, figs. 1-5. Literature cited, pp. 182-183.

TSOU, T. L. The distribution of the migratory locust and ecological study of its breeding ground in China. *Agricultura Sinica*, Nanking, China, 1935, Vol. 1, No. 8, pp. 239-272, figs. 1-11, pls. I-IV. [Literature cited], p. 268.
[In Chinese, with title and summary in English:— ' Ecology and life history of the migratory locust (*Locusta migratoria* L.) in China '].

Verona, O. Sul comportamento dei microrganismi di fronte ad alcune sostanze coloranti, con particolare riferimento al verde malachite ed alla possibilità di una sua applicazione fitoterapica. *Bollettino del R. Istituto Superiore Agrario di Pisa*, Pisa, 1935, vol. XI, pp. 421-472, figg. 1-4. Lavori citati, pp. 471-472.

Verona, O., e **Pasinetti**, P. Su di un deperimento della *Lactuca sativa* L. *Bollettino del R. Istituto Superiore Agrario di Pisa*, Pisa, 1935, vol. XI, pp. 364-376, figg. 1-2, 1 tav.
[*Bacterium vitians*].

Weidner, Herbert. Wie kann man Hausbockbefall und von anderen Holzinsekten herrührende Beschädigungen des Bauholzes unterscheiden? *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 5, S. 48-50, 14 Abb.
[*Hylotrupes bajulus*].

Weimer, J. L., and **Mason**, B. A. Relative resistance to bacterial wilt of certain commercial and selected lots of alfalfa. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 7, pp. 547-555. Literature cited, p. 555.
[*Phytomonas insidiosa*].

Wenzl, Hans. Knospengallen durch Rosenrost. (Bemerkungen zur morphologischen Einteilung der Gallen). *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 3/4, S. 204-214, Abb. 1-3. Schriftenverzeichnis, S. 214.
[*Phragmidium subcorticium*].

Werth, E. Die forstliche Bodenerkrankung durch Rohhumusbildung. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 4, S. 37-38.

Wilde, S. A. Soil nematodes in forest nurseries. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 2, pp. 198-199, fig. 1.
[*Rhabditis* sp.].

Wilhelm, A. F. Eine für Deutschland neue Bakterienkrankheit an Begonien. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 6, S. 58-60, Abb. 1-3.
[The name of the organism in question is not given].

Wilkins, W. H. Studies in the genus *Ustulina* with special reference to parasitism. II. A disease of the common lime (*Tilia vulgaris* Hayne) caused by *Ustulina*. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pt. II, pp. 133-156, figs. 1-8, pl. I. References, pp. 155-156.
[*U. vulgaris*].

Wittersтein, F. Studien über den Mottenflug des Heu- und Sauerwurms in den Jahren 1933-1935 in Geisenheim a. Rh. *Anzeiger für Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 3, S. 25-30, Abb. 1-5. Literatur, S. 30.
[*Clysia ambiguella* and *Polychrosis botrana*].

Wolf, Frederick A. Tobacco diseases and decays. (Duke University Publications). Durham, North Carolina, Duke University Press, 1935, XIX + 454 pp., 113 figs. References, pp. 3, 4, 23, 25, 28, 31, 34, 38, 43, 47, 48, 49, 52, 57, 60, 67, 94-96, 97, 98, 99, 100, 102, 103, 104, 107-109, 117-118, 165-169, 175-176, 179, 184, 185, 186, 188, 196-197, 200, 211-212, 227-228, 236, 240, 244-245, 247, 248-249, 250, 253, 254, 255, 268-269, 279-280, 299-300, 305-306, 310, 315, 320, 325, 328, 331-332, 335, 341, 343, 348, 349, 350, 351-352, 353, 354-355, 357, 358, 367, 372, 377, 378, 383, 387, 388, 390, 392. Bibliography of tobacco diseases and decays, pp. 393-444.

WOO, F. C., and CHENG, T. S. A general investigation of the locust outbreaks in China during the year 1934 conducted by the National Agricultural Research Bureau. *Special Publication No. 10*, Nanking, China, 1935, 32 pp., 7 fig [In Chinese, with title and summary in English].

WOO, F. C., and HSU, Shihchün K. T. A review of the study and control of agricultural insect pests in China. *Special Pubblication No. 11* [published by the National Agricultural Research Bureau], Nanking, China, 1935, 50 pp. Bibliography in Chinese and English, pp. 32-43, 46-50.
[In Chinese, with title and summary in English].

YANG, Chien-Tsien. Notes on a Satyrid pest of bamboo in Fuyang. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 2, pp. 28-30. [In Chinese, with title and summary also in English].

YOUNG, Paul A. Distribution and effect of petroleum oils and kerosenes in potato, cucumber, turnip, barley, and onion. *Journal of Agricultural Research*, Washington, D. C., 1935, Vol. 51, No. 10, pp. 925-934, pls. 1-3. Literature cited, pp. 933-934.

YOUNG, Paul A. Sclerotinia rot of squash and pumpkin. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 2, pp. 184-190, figs. 1-2. Literature cited, pp. 189-190.
[*Sclerotinia sclerotiorum*].

ZOLOTAREVSKY, B. Note préliminaire sur le criquet migrateur (*Locusta migratoria migratorioides* Rch. & Frm.) dans le Soudan français. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord*, Alger, 1936, tome XXVII, n° 1, p. 23-46.

ZOLOTAREVSKY, B. Compte rendu sommaire sur les recherches de la Mission d'études de la biologie des acridiens dans la région du Tchad en 1935. *Bulletin de la Société d'Histoire naturelle de l'Afrique du Nord*, Alger, 1936, tome XXVII, n° 3-4, p. 108-124, 1 carte.
[*Schistocerca gregaria, Nomadacris septemfasciata, Locusta migratoria migratorioides*].

ZWEIGELT, Fritz. Immunbiologie, Immuntherapie und Immunzüchtung. *Gartenzeitung*, Wien 1935, Nr. 7, S. 77-79; Nr. 8, S. 92-95

NOTES

Xth International Congress of European Beetroot-Growers. — The Xth International Congress of European Beetroot-Growers, which was held in Poland from 18 to 23 June, 1936, has given, *inter alia*, authority to the bureau to carry out immediately an enquiry into the methods of scientific and technical control of the beet leaf bug (*Piesma quadrata*) in collaboration with the Beetroot Research Institutes.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

Below is given a summary of the locust situation in the Colony during the first quarter of 1936.

Luanda District. — In January, some swarms were observed and at the end of the month, laying started in Icolo and Bengo. In February, collection of egg-pods was started in both these places and 1.354 kg. were collected. During this month laying was reported though locusts movements were slight. In March, 740 hopper bands were destroyed and 110 kg. of egg-pods were collected. In April, the control was continued and 626 hopper bands were destroyed and more than 733 kg. of egg-pods were collected. In Libongos a certain amount of damage to cotton crops was reported.

Congo District. — At the end of January, control of the hoppers was carried out in Bembe with a gang of 200 natives. At the beginning of February, a number of hopper bands appeared. In March, this district was invaded by a large quantity of locusts; in Sanza Combo 1.309 kg. of egg-pods were collected. In April, the locust control was continued.

Zaire District. — On 21 January a swarm covering 8 km. was observed at Emilio de Carvalho. In February, laying was reported and the control was started in certain regions invaded by hoppers. In March, the invasion by hoppers was general and the control was continued.

Huila District. — In January, various swarms were reported in several zones in this district. In February and March a similar situation was reported, the locusts causing damage of no great importance. In April, hopper bands were seen in various places also adults.

Bié District. — In January and February, some swarms and egg-laying were reported.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. Jorge de Barros Rodrigues Queiroz, Director of the Laboratory of Plant Pathology and Agricultural Entomology, Luanda, attached, as expert, to the Service of Locust Control, transmitted to the Institute by the Government General of the Colony.

Quanza Norte District. — In February, a swarm was reported at Ambaca where laying took place. In March, large hopper bands appeared in Lucala. During this month 174 kg. of egg-pods were collected and destroyed.

Quanza Sul District. — In February, large swarms appeared in certain regions in this district. In March, hopper bands were reported in Cabuta and Baixa do Quanza.

Malange District. — In the middle of February, hoppers began to appear in this district. In April, the appearance of large hopper bands was reported in various localities.

Benguela District. — In March, a great number of hopper bands were observed and controlled at Egito.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) *

During the month of April, 1936, the presence of some hoppers has been noted in the central zone of the Colony, which indicates a delay in hatching compared with past years.

The movement of the swarms took place chiefly in regions near the Zambesi river, that is, the districts of Quelimane and Tete.

During this month, however, some hopper bands were destroyed.

In the south of the Colony, the same phenomenon is reported, that is to say there were a certain number of hoppers during the month of April.

In the circumscription of Maputo, a late appearance is reported of hoppers, which are infesting the greater part of the Libombos plains.

In the greater part of the circumscriptions, the number of hopper bands was less than last year, with the exception of Sabié and part of Maputo. Control of most of these bands has been effected.

The adults have begun to swarm.

Southern Rhodesia: Locust Invasion, 1932-1936 †

Monthly Report No. 43. June, 1936.

Few reports of locusts have been received during the month, and these have referred only to the Red Locust (*Nomadacris septemfasciata*, Serv.).

The last hoppers were destroyed or developed wings early in the month.

---

* Communication from Mr. Júlio Gardé Alfaro Cardoso, Chief of the Entomological Section Lourenço Marques, transmitted to the Institute by the 'Repartição Técnica de Agricultura' of the Colony.

† Communication from the official correspondent of the Institute, Mr. Rupert W. Jack, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

Winged swarms have been reported from the districts of Charter, Hartly, Chibi, Victoria, Mazoe, Lomagundi, Salisbury and Mrewa.

Most of these have been described as of 'small' or 'medium' size, but one swarm seen in the north of the Lomagundi district on the 20th was described as 'large'.

The position appears to have been very similar to that during June last year, except that the swarms have been smaller.

Rumania: Diseases of Cultivated Plants Observed in 1934-1935 *

I. Cereals.

WHEAT.

Thanks to exceptional meteorological conditions of the spring of 1935, invasions by rusts have not been so serious as in preceding years The most widespread has been *Puccinia triticina*.

Tilletia tritici and *T. foetens*.
Fusarium nivale.

BARLEY.

Helminthosporium teres.

OATS.

Ustilago avenae.

RYE.

Puccinia dispersa.
Claviceps purpurea.

MAIZE.

Ustilago zeae.
Puccinia maydis, very widespread.
Fusarium moniliforme.

II. Industrial Plants.

TOBACCO.

Mosaic (Ring spot).
Ascochyta nicotianae.

SOYA.

Mosaic.

LUFFA.

Mosaic.

SUNFLOWER

Sclerotinia Libertiana.

COTTON.

Bacterium Malvacearum, very widespread.
Pythium de baryanum, on seedlings in glass houses.

CHICK PEAS.

Ascochyta rabiei.

---

* Communication from the official correspondent of the Institute, Prof. TR. SĂVULESCU, Chief of the Phytopathological Section, Institute of Agronomical Research of Rumania, Bukarest.

III. Grape vine.

Chlorosis.
Plasmopara viticola, in the districts of the former Kingdom.

Court-noué.
Charrinia diplodiella.

IV. Vegetables.

HARICOT BEANS.

Mosaic.
Uromyces appendiculatus.
Bacterium phaseoli.

PEPPER.

Actinomvces totschidlowskii.

ONIONS.

Peronospora schleideni.

SPINACH.

Peronospora spinaciae.

V. Ornamental Plants.

ROSE.

Sphaerotheca pannosa.
Phragmidium subcorticium.
Cercospora rosae.
Diplocarpon rosae.

CARNATION.

Heterosporium echinulatum.

IRIS GERMANICA.

Heterosporium pruneti.

RIBES AUREUM.

Cronartium ribicola.

ELEAGNUS ANGUSTIFOLIA

Septoria argyrea.

CHINA ASTER.

Puccinia asteris.

NERIUM OLEANDER.

Phyllosticta nerii.

PEONY.

Cladosporium paeoniae.

VI. Fruit Trees and Shrubs.

PLUM.

Puccinia pruni-spinosae.
Clasterosporium carpophilum.
Sclerotinia cinerea.
Polystigma rubrum.

WALNUT.

Gnomonia leptostyla.
Alternaria nucis.

PEACH.

Clasterosporium carpophilum.
Sphaerotheca pannosa.

APRICOT.

Clasterosporium carpophilum.
Apoplexy.
Sclerotinia laxa.

CHERRY.

Clasterosporium carpophilum.
Cercospora cerasella.

APPLE.

Aspidiotus perniciosus.
Sclerotinia fructigena.
Myxosporium corticolum.
Pseudomonas tumefaciens.
Podosphaera leucotricha.
Fusicladium dendriticum.

QUINCE.

Entomosporium maculatum.
Gloeosporium cydoniae.

PEAR.

Aspidiotus perniciosus.
Septoria piricola.
Gymnosporangium sabinae.

VII. Forest and Avenue Trees and Shrubs.

LIME.

Cercospora microsora.

OAK.

Microsphaera abbreviata.

ACER.

Rhytisma acerinum.

VIII. Pasture and Forage Plants.

AVENA ELATIOR.

Puccinia lolii.

LOLIUM ITALICUM

Erysiphe graminis.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

England. — The Fruit Tree Pests (East and West Suffolk) Order of 1936, dated 27 May, 1936, fixes the rules to be followed for examining fruit trees attacked by plant and animal parasites (*Sphaerotheca mors-uvae, Nectria galligena, Venturia inaequalis, V. pirina, Sclerotinia* spp., *Anthonomus pomorum, Plesiocoris rugicollis, Hoplocampa testudinea, H. flava, Psylla mali, Eriopyes ribis* and other mites, *Cydia pomonella, Lygus pabulinus, Aphididae Byturus tomentosus*, and *Cheimatolsia brumata*) also those for preventing the spreading of these diseases and pests in East and West Suffolk. (*Statutory Rules and Orders*, 1936, No. 622. *Destructive Insects and Pests, England. The Fruit Tree Pests* (*East and West Suffolk*) *Order of* 1936, *dated May* 27, 1936. (*D. I. P.* 590), London, 1936, 4 pp.).

Australia (South Australia). — The Minister of Agriculture has notified the following:—

(1) The plants described in the First Schedule hereto have, by regulation, been declared to be noxious weeds throughout the whole of the State.

(2) The plants described in the Second Schedule have, by regulation, been declared to be noxious weeds to the extent therein specified.

(3) The regulations provide that the time for compliance with any notice to destroy noxious weeds under sections 14 or 28 of the Noxious Weeds Act, 1931, shall be one month.

THE FIRST SCHEDULE.

Botanical Name	Common Name.
Asclepias fruticosa *Asclepias rotundifolia*	Cotton Bush.
Asphodelus fistulosus	Wild Onion.
Carthamus lanatus	Saffron Thistle.
Cenchrus tribuloides	Innocent Weed.
Centaurea calcitrapa	Purple Star Thistle
Centaurea solstitialis	Yellow Cockspur
Cirsium arvense	Canada Thistle
Citrullus colocynthis	Colocynth
Conium maculatum	Hemlock.
Cuscuta spp	Dodder.
Datura tatula	Horny Thorn Apple
Datura stramonium	Thorn Apple.
Euphorbia terracina	False Caper
Homeria collina	Cape Tulip.
Homeria miniata *Hypericum perforatum*	St John's Wort
Marrubium vulgare	Horehound
Ornithogalum thyrsoides	Black-eyed Susan
Reseda luteola	Dyer's Weed (Weld).
Solanum rostratum	Buffalo Burr
Solanum sodomaeum	Apple of Sodom.
Xanthium californicum	Californian Burr.
Xanthium spinosum	Bathurst Burr

THE SECOND SCHEDULE

Chenopodium album .. .. White Goosefoot (Fat Hen).

(Applies to that portion of the State comprising the City of Adelaide and the Waikerie Irrigation Area).

Foeniculum vulgare .. .. Fennel

(Applies to that portion of the State comprising the Municipality of Mount Gambier).

Lavandula stoechas .. .. Wild Lavender.

(Applies to that portion of the State comprising the District Council of Port Elliot).

Lycium ferocissimum .. .. African Box Thorn.

(Applies to the whole of the State, except where grown as a hedge on the 17th March, 1932, and kept trimmed to a width not exceeding in any part 4ft. 6in. and to a height not exceeding 7ft.).

Lepidium draba .. .. Horary Cress.

(Applies to that portion of the State comprising the District Council of Tatiara).

Silybum marianum .. .. Variegated Thistle.

(Applies to that portion of the State comprising the Municipality of Mount Gambier).

(*The South Australian Government Gazette*, Adelaide, January 16, 1936, No. 3, p. 143).

Brazil (State of São Paulo). — By Decree No. 7.423 of 17 October, 1935, approval is given to the regulation relative to the functioning of services for protection against the coffee berry borer [*Stephanoderes hampei*], in accordance with the dispositions contained in Article 47 of the Decree No. 6.621 of 24 August, 1934. (Secretaria da Agricultura, Industria e Commercio do Estado de São Paulo. Directoria de Publicidade Agricola. *Boletim de Agricultura*, S. Paulo, 1936, série 36ª, anno de 1935, nº unico, pags. 102-113).

Spain. — By Decree of 15 June, 1936, the Minister of Agriculture is authorised to present to the 'Cortes' a bill for a Fundamental Law on the encouragement and protection of apiculture.

According to Article 3 of the said bill, the Agricultural and Forestry Services engaged in the application of measures for the destruction of field pests, will be obliged to inform the respective Municipalities in order that said authorities may bring it to the notice of bee-keeepers in the locality in advance so that they may take the necessary steps during the operations indicated.

Such notification should be given by all persons applying the said steps.

When the substance used for this control entails the utilisation of recipients or cases these should be protected by cloths or wire netting which prevent them coming in contact with the bees. (*Gaceta de Madrid*, 18 junio 1936, año CCLXXV, tomo II, núm. 170, pág. 2444).

⁂ By 'Orden' of 24 June, 1936, regulations are laid down relative to suitable means of prevention in locust control. (*Ibid.*, 26 junio 1936, núm. 178, págs. 2692 y 2693).

⁂ By 'Orden' of 25 June, 1936, supplementary instructions are issued for completing the 'Orden' of 24 of the same month. (*Ibid.*, 27 junio 1936, núm. 179, pág. 2718).

Estonia. — The Royal Station Ministry of Foreign Affairs has informed the International Institute of Agriculture that the Estonian Chargé d'Affaires in Rome notified the said Ministry on 5 August, 1936 of the adherence of the Estonian Government to the International Convention for Plant Protection, signed in Rome on 16 April, 1929, [see this *Bulletin*, 1929, No. 4, pp. 50-55].

United States of America. — Notice of Quarantine No. 48 (eleventh revision) and rules and regulations (fourteenth revision) supplemental to the said Notice of Quarantine, on account of the Japanese beetle (*Popillia japonica*), have been approved on 7 March and are effective from 16 March, 1936 [see also this *Bulletin*, 1935, No. 10, pp. 228-229].

An important change in the revision of the Japanese beetle quarantine provides for exemption of certain products by administrative instructions issued by the Chief of the Bureau of Entomology and Plant Quarantine, when in his judgment the nature of the growth or production, or the manufacture or processing of such products, is such that their interstate movement is not considered to constitute danger of spread of infestation.

The regulations have also been revised to include in the regulated area additional territory in the States of Maine, Maryland, New York, and Virginia. Some outlying areas where Japanese beetle infestations have been found are not included in the regulated area because of assurance from the States concerned that adequate measures will be taken to prevent the spread of the pest therefrom. The restrictions on the interstate movement by refrigerator car or motor truck of all fruits and vegetables from the District of Columbia and portions of the States of Delaware, Maryland, New Jersey, Pennsylvania, and Virginia, between 15 June and 15 October, inclusive, have been extended to apply to the entire State of Delaware. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Japanese Beetle Quarantine. Quarantine No. 48. Revision of Quarantine and Regulations*, [Wnshington], 1936, 13 pp.).

⁂ Amendment No. 1 to rules and regulations supplemental to Notice of Quarantine No. 71 [see this *Bulletin*, 1935, No. 6, p. 136], on account of the Dutch elm disease [*Ceratostomella ulmi*], approved on 27 March and effective on 1 April, 1936, adds to the area designed as regulated seven townships in Hunterdon County; one township in Middlesex County; three townships in Monmouth County; two townships in Morris County; five townships in Sussex County; and eight townships in Warren County, in the State of New Jersey. It also adds seven towns in Orange County; four towns in Putnam County; and two towns in Westchester County, N. Y.

This action was taken on the basis of intensive inspections made throughout the year which disclosed infections in areas contiguous to the previously regulated area. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Modification of Dutch Elm Disease Quarantine Regulations*, [Washington], 1936, 2 pp.).

France. — By Law of 13 August, 1936, is ratified and converted in a Law the Decree of 7 November, 1935, [see this *Bulletin*, 1936, No. 2, p. 33] containing modifications in the customs fees on pyrethrum [*Chrysanthemum cinerariaefolium*] and products derived from pyrethrum. (*Journal Officiel de la République française*, Paris, 14 août 1936, LXVIII^e année, n° 190, p. 8747).

British Guiana * — The Ordinance No. 37 of 1935, published on 28 December, 1935 and which may be cited as the Plants Diseases and Pests (Prevention) Ordinance, 1935, regulates the importation and exportation of plants and makes provision for the prevention and eradication of diseases and pests affecting plants.

⁂ The Order in Council No. 550 of 2 April, 1936, declares the Coconut Caterpillar (*Brassolis sophorae* L.) to be a notifiable pest, and the Witches' Broom Disease of Cacao (*Marasmius perniciosus* Stahel) to be a notifiable disease in the North West District of the Colony.

⁂ The Order in Council No. 551 of 2 April, 1936 prohibits the importation of sugar canes, grasses, earth ,soil and other articles and prescribes the conditions under which banana and plantain suckers may be imported.

⁂ The Order in Council No. 552 of 2 April, 1936 prescribes the conditions under which plants and plant parts intended for propagation, other than sugarcane and other grasses, plantains and bananas may be exported from or imported into the Colony.

Italy. The Royal Decree-Law No. 1530 of 11 June, 1936, revokes Article 12 and modifies Articles 6, 7, 10, 11, 15, 17, 18, 20, 24, 27 and 32 of the Law No. 987 of 18 June, 1931 [see this *Bulletin*, 1931, No. 9, p. 166] containing measures for the protection of cultivated plants and agricultural products against noxious agents, also measures for the organisation of services relative thereto, (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 21 agosto 1936, anno 77°, n. 193. p. 2646-2647).

⁂ By Ministerial Decree of 19 June, 1936, and by virtue of the Royal Decree Law No. 1754 of 12 August, 1927 containing measures for the development of olive-growing, also the Law No. 987 of 18 June, 1931 [see this *Bulletin*, 1931, No. 9, p. 167] containing measures for the protection of cultivated plants and agricultural products, a compulsory syndicate has been established for the improvement and development of olive-growing in the province of Cagliari.

---

* From documents communicated to the Institute by the Department of Agriculture, Georgetown, British Guiana.

The contribution payable by each member of the syndicate cannot exceed 10 centesimi per olive tree in bearing. (*L'Agricoltura Sarda*, Cagliari, 31 maggio-15 giugno 1936, anno XV, n. 10-11, pp. 1-2).

Italian Libya. — By Decree of the Italian Minister of Colonies, dated 20 May, 1936, the importation into Italian Libya of plants and fresh fruits of Rosaceae is not permitted without previous authorisation from the Phytosanitary Bureau of the Colony.

Consignments of the above mentioned plants and fruits should be accompanied by an official certificate of origin attesting that the plants and fruits in question do not come from countries or provinces infested by the oriental peach moth (*Cydia [Laspeyresia] molesta*). (Ministero delle Colonie. *Bollettino Ufficiale. Legislazione e Disposizioni ufficiali*, Roma, giugno 1936, anno 1936, n. 6, p. 426).

Morocco (French Zone). — A Decree of the Director General of Agriculture, dated 17 April, 1936, fixes the conditions and programme of the competition for the post of controller of plant protection and phytopathological inspection.) (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 1^er^ mai 1936, XXV^e^ année, n° 1227, p. 534-535).

⁂ A Decision of the same Director General, dated 21 April, 1936, fixes the date of the competition for four posts as controllers of plant protection and phytopathological inspection. (*Ibid.*, p. 535-536).

⁂ By Decree of the Director of Economic Affairs, dated 27 July, 1936, in the circle of Chauïa-sud, an inquiry has been opened on the project of forming a Syndicate for the control of the 'pou rouge' [*Chrysomphalus dictyospermi*]. (*Ibid.*, 7 août 1936, n° 1241,

Turkey * — The Law No. 2906 relative to the protection of plants against diseases and pests passed on 29 January, 1936, has been promulgated and came into force on the following 5 February.

The first part of the Law, concerning the importation and exportation of plants, stipulates that plants introduced from foreign countries should be free from diseases and pests which should be prevented from entering Turkey. It is also required that the places of origin of plants introduced should be free from these diseases and pests. All consignments of plants presented for importation should be accompanied by a certificate of health and origin issued by a Plant Protection Station recognised by the Turkish Government.

The list of diseases and pests which should be prevented from entering Turkey will be published and communicated by the Ministry of Agriculture to the countries interested.

---

* Communication from the official correspondent of the Institute, Mr. SUREYA, Councillor of State, Ankara, Turkey.

The importation of plants is limited to certain custom-houses which will be Stations of disinfection and control and which will be expressly authorised by the Council of Ministers. Importation will only be admitted after verification of documents and after examination has shown that the plants are free from diseases and pests.

If, on examination, the presence of diseases and pests is stated, the importer may return the merchandise to the place of origin within the following 15 days. If the merchandise is not returned it will be destroyed at the expense of the Station of disinfection and control in the presence of a mixed Commission. A report should be drawn up.

If the diseases or pests stated by the examination are those which are already very widespread in Turkey, the Ministry of Agriculture may permit importation of the merchandise after preliminary disinfection carried out by the custom-house Station of disinfection at the expense of the importer.

The certificates necessary for consignments of plants and parts of plants intended for exportation from Turkey will be issued by the Agricultural and Plant Protection Service. Exportation will only be permitted when the custom-house Station of disinfection and control has declared that the merchandise corresponds to the phytosanitary regulations of the importing country.

The second part of the present Law concerns the protection of plants cultivated in the country.

It is compulsory to declare the appearance of all diseases and pests.

The Agricultural and Plant Protection Service will give farmers the necessary instructions for control. Owners and tenants of land are obliged to carry out the operations of control according to the instructions given and at the period fixed.

If at the date fixed for the control this has not been carried out by the persons interested it will be carried out by the Ministry of Agriculture.

If the land infected by diseases and pests is not the property of any person or if the infestation takes alarming proportions, the whole population will be obliged to take part in the control, according to the terms of the Law of 26 May, 1926, relative to locust control. In this case the expenses will be born by the vilayets or by the Ministry of Agriculture. The civil and military authorities are obliged to render assistance.

The Ministry of Agriculture is authorised to take the measures necessary for preventing the spread of diseases and pests from an infested region to other parts of the country not yet infested. If the Ministry of Agriculture decides that the plants or produce attacked should be destroyed, it should indemnify the person interested by payment of half the value of the products destroyed.

The officials of the Agricultural and Plant Protection Service have free access to all places of cultivation, warehousing and transport of plants.

Nurseries and horticultural establishments will be supervised by the Ministry of Agriculture at least twice a year.

The importation, production and sale of means of control will be subordinated to the permission of the Ministry of Agriculture. Manufacturers of preparations to whom the Ministry of Agriculture will accord this permission should take care that their products retain the physical and chemical characters at the same standard. All modifications should be communicated to the Ministry which should subsequently renew the supervision.

The Ministry will communicate to persons interested the list of authorised means of control.

The third part of the Law contains penal dispositions.

The last part revokes the Law of 27 December, 1927, relative to grape phylloxera and that of 14 August, 1930, concerning pests and weeds, also paragraphs 28 and 29 of the Law No. 1528 relative to budding trees growing wild.

Uruguay. — The Decree of 28 January, 1936 regulating the exportation of fresh fruits, establishes, *inter alia*, that only fresh fruit may be exported which is virtually free from insects and cryptogamic diseases or any other damage of physical origin which affects its appearance.

The official of the 'Defensa Agrícola', before issuing the health certificate, should determine that all regulations established in this present Decree have been carried out.

All consignments of fruit refused by the 'Inspección de Embarque' owing to an unsatisfactory health condition or for any other reason, should be withdrawn from the port zone, within 24 hours after notification of the decision, and should be marked with a stamp 'Plaza' or otherwise destroyed at the expense of those interested. (*Diario Oficial*, Montevideo, 2 de marzo de 1936, tomo 122, núm. 3858, págs. 261-A a 263-A).

RECENT BIBLIOGRAPHY

Aamodt, O. S., Torrie, J. H., and Takahaski, K. The effect of several collections of Tilletia tritici and T. levis on the morphology of spring wheats. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 344-359, figs. 1-2. Literature cited, pp. 358-359.

Andrewartha, H. G. A preliminary survey of the Far North district as a possible endemic area for plague grasshoppers. *The Journal of the Department of Agriculture of South Australia*, Adelaide, 1926, Vol. XXXIX, No. 10, pp. 1223-1224, 1 map.
[*Chortoicetes terminifera*].

Ark, P. A., and Thomas, H. Earl. Persistence of Erwinia amylovora in certain insects. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26; No. 4, pp. 375-381. Literature cited, p. 381.
[*Drosophila melanogaster*, *Musca domestica*, *Lucilia seriata*, *Apis mellifica*].

Bacigalupo, Juan, y Llosa, Julio A. Posible diseminación de nematodes, parásitos de plantas, por intermedio de los animales. *Revista Argentina de Agronomía*, Buenos Aires, 1935, tomo 2, n.º 6, págs. 96 a 102.

Bechhold, H., und Erbe, F. Versuche zur Aufklärung des Mechanismus der "Kupferprobe" zur Feststellung des Kartoffelabbaus. *Phytopathologische Zeitschrift*, Berlin 1936. Bd. IX, Heft 3, S. 259-296, Abb. 1-4. Literaturverzeichnis, S. 296.

Birkeland, Jorgen M. On the classification of plant viruses. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 456-458. Literature cited, p. 458.

Bitancourt, A. A., and **Jenkins**, Anna E. Elsinoe fawcetti, the perfect stage of the citrus scab fungus. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 393-396, fig. 1.
[A description in English and a Latin diagnosis are given of *Elsinoe fawcetti* n. sp. found on *Citrus nobilis unshiu* in Brazil].

Blanchard, Everard E. Identificación microscópica de los pulgones (Aphididae) que invaden los frutales de la República Argentina. *Revista Argentina de Agronomía*, Buenos Aires, 1936, tomo 3, n° 1, págs. 27 a 34, 24 figs.

Brandt, Herbert. Ein einfaches Merkmal zur Festellung des Geschlechtsverhältnisses von Kiefernspannerpuppen. *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 6, S. 72-73, Abb. 1.
[*Bupalus piniarius*].

Burkart, Arturo. Un nemátode parásito de « Poa annua » en Buenos Aires. *Revista Argentina de Agronomía*, Buenos Aires, 1935, tomo 2, n° 6, págs. 136 a 138, 7 figs.
[*Anguillulina radicicola*]

Calcaño, Edmundo T. Medidas preventivas tomadas en Holanda para evitar la introducción del insecto « Leptinotarsa decemlineata », enemigo voraz de la papa. *Revista Argentina de Agronomía*, Buenos Aires, 1936, tomo 2, n° 8, págs. 362 a 364.

Caldwell, Ralph M., amd **Stone**, G. M. Relation of stomatal function of wheat to invasion and infection by leaf rust (Puccinia triticina). *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 12, pp. 917-932, figs. 1-4. Literature cited, p. 932.

Cartwright, W. B., and **Wiebe**, G. A. Inheritance of resistance to the hessian fly in the wheat crosses Dawson × Poso and Dawson × Big Club. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 9, pp. 691-695, fig. 1.
[*Phytophaga destructor*].

Chappellier, A., [et] **Raucourt**, M. Les traitements insecticides arsenicaux sont-ils dangereux pour le gibier et pour les animaux de la ferme ? *Annales des Epiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. 4, p. 191-239, graphique 1. Bibliographie, p. 238-239.

Chappellier, A., [et] **Raucourt**, M. Les oiseaux contre le doryphore. *Annales des Epiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. 4, p. 241-252.
[*Leptinotarsa decemlineata*].

Christoff, Alexander, and **Christova**, Eleonora. Some new plant diseases for Bulgaria. *Bulletin de la Société Botanique de Bulgarie*, Sofia, 1936, vol. VII, p. 7-22.
[In Bulgarian, with title and summary in English.– A list of 33 noxious species new to Bulgaria and 48 other noxious species observed on 75 host plants new to that country].

Cressman, A. V., and **Dawsey**, Lynn H. The comparative insecticidal efficiency against the camphor scale of spray oils with different unsulphonatable residues. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 11, pp. 865-878, figs. 1-3. Literature cited, p. 878.
[*Pseudaonidia duplex*].

Crowell, Ivan H. Index to the relative susceptibility of orchard apples to cedar-apple rust. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 459-461.
[*Gymnosporangium juniperi-virginianae*].

Dawsey, L[ynn] H. Determination of the less refined mineral oils on leaf surfaces after spraying. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 6, pp. 681-690, fig. 1.

de Fina, Armando L. Las heladas primaverales en Buenos Aires durante el período 1909-1933. *Revista Argentina de Agronomía*, Buenos Aires, 1935, tomo 2, nº 6, págs 57 a 77, gráficos 1-4. Bibliografía citada, págs. 66 y 67.

Demandt, E. Übertragung des Kakaofäule durch Rauch. *Der Tropenpflanzer*, Berlin 1936, 39. Jahrg , Nr. 7, S. 304-306, 1 Abb.
[*Phytophthora faberi*].

Dykstra, T. P. Comparative studies of some European and American potato viroses *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No 6, pp. 597-606, figs. 1-4. Literature cited, p. 606

[**Executive Committee of the Fifth Congress of the International Society of Sugar Cane Technologists**]. Proceedings of the International Society of Sugar Cane Technologists. Fifth Congress. Brisbane, 27th August to 3rd September, 1935, Published by the Executive Committee. Brisbane, David Whyte, Queensland Government Printer, 1936, XVIII + 887 pp , 112 figs , 66 pls.

[The proceedings of this Congress contain, *inter alia*, the following papers devoted to diseases and pests of the sugar-cane:—

Importance of the virus diseases of sugar-cane, by E. W. Brandes and Julius Matz.

On the future of research on the virus diseases of plants, by H. H. Storey.

The insects vectors of virus diseases of sugar-cane, by C. E. Pemberton.

Progress of sugar-cane root rot studies in Hawaii, by C. W. Carpenter.

Sugar-cane disease control in Hawaii through the modification of agricultural practices, by J. P. Martin.

Frost damage in cane and some experiments to minimise its intensity, by F. M. Barton.

Investigations on the cane beetle borer, *Rhabdocnemis obscura* Boisd., and its parasite, *Ceromasia sphenophori* Vill., in Fiji, by G. L. Windred.

Biological control of sugar-cane pests in the British West Indies and British Guiana, by J. G. Myers.

A review of control work on *Diatraea saccharalis* F. in Barbados, by R. W. E. Tucker.

Parasite introductions: Barbados and Puerto Rico, by R. W. E. Tucker and George N. Wolcott.

The sugar-cane white grub, *Lachnosterna* (*Phytalus*) *smithi* Arrow, in Mauritius, by L. Andre Moutia.

The white grub problem in Puerto Rico, by George N. Wolcott.

Control of the " greyback cane beetle " (*Lepidoderma albohirtum* Waterh.) in North Queensland, by R. W. Mungomery and J. H. Buzacott.

The species of *Diatraea* attacking sugar-cane in the new world, by Harold E. Box.

Recommendations for control of the sugar-cane borer in Louisiana, by W. E. Hinds and B. A. Osterberger.

Disease resistance tests on sugar-cane seedlings and initial selection procedure in the southern United States, by R. D. Rands, E. V. Abbott an E. M. Summers.

Testing canes for disease resistance in Louisiana, by C. W. Edgerton and E. C. Tims.

Fiji disease and varieties, by D. S. North and E. G Baber.

Gumming and leaf scald resistance trials in Mauritius, by E. F. S. Shepherd.

Disease resistance trials in Queensland, by Arthur F. Bell.

Resting cane varieties for disease resistance in Hawaii, by J. P. Martin and C. W. Carpenter.

Wireworms (*Elateridae*) and their control in Queensland sugar-cane fields, by W. A. McDougall.

A short note on the breeding of *Bufo marinus* in captivity, by R. W. Mungomery.

Recent control measures against *Anomala orientalis* Waterh. in Hawaii, by C. E. Pemberton.

The rat pest in cane areas, by K. R. Gard.

The variability of plant pathogens, by W. Cottrell-Dormer.

Strains of the sugar-cane mosaic virus in Louisiana, by Eaton M. Summers.

Physiologic specialization in *Colletotrichum falcatum* Went., by E. V. Abbott.

Gummosis disease of sugar-cane in Puerto Rico, by Melville T. Cook.

Relative infectivity of mosaic virus in the different parts of infected sugarcane, by Julius Matz.

Transmission of new types of sugar-cane mosaic and some observations on significance of the diseases, by E. W. Brandes.

Streak disease of sugar-cane, by A. P. D. McClean.

Chlorotic streak disease of sugar-cane, by J. P. Martin].

Ferraris, T[eodoro]. Malattie delle piante industriali, forestali, ornamentali. I. Crittogame. Roma, Ramo Editoriale degli Agricoltori, 1936, 59 pp., 15 figg., 1 tav. a col. (Biblioteca per l'insegnamento agrario professionale).

Flor, H. H. Flax seed-treatment tests. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 429-438. Literature cited, p. 438.

[Against *Colletotrichum lini*, *Fusarium lini*, *Pythium* sp. and *Rhizoctonia* sp.].

Fowler, Marvin E. Fasciation of Betula pendula dalecarlica. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 390-391, figs. 1-2.

FORESTRY COMMISSION. Studies on the pine shoot moth (*Evetria buoliana* Schiff.). *Bulletin No. 16*, London, 1936, 46 pp., 2 graphs, 7 pls. Bibliography, pp. 44-46.
[Contains:—
Part 1. The biology and forest relations of the pine shoot moth, by the late C. C. Brooks (pp. 6-26).
Part 2. The status of the pest in East Anglia and experiments on control, by J. M. B. Brown (pp. 27-43)].

FRÖMMING, Ewald. Sind die verschiedenen Pflanzengifte wirklich ein natürlicher Schutz gegen Tierfrass? *Anzeiger für Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 6, S. 67-72. Erwähnte Schriften, S. 71-72.

GARASSINI, Luis A. Estudio biometrico de las esporas de Phlyctaena ? linicola Speg. *Revista Argentina de Agronomía*, Buenos Aires, 1935, tomo 2, nº 7, págs. 245 a 249, gráfico 1.

GASSNER, G., und KIRCHHOFF, H. Die Bedeutung der Wasseraufnahme des Weizenkorns, insbesondere des Weizenembryos, für Wirkung und Wirkungsweise der Warmwassertauch- und- benetzungsbeize. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 3, S. 229-258, Abb. 1-10. Schriftenverzeichnis, S. 258.

GAUDINEAU, M. Le wilt ou flétrissement des Reines-Marguerites. *Annales des Epiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. 2, p. 145-157, fig. 1. Bibliographie, p. 155-157.
[A disease due to *Fusarium callistephi* and very rarely to *Verticillium dahliae* in France].

GÄUMANN, Ernst. Ueber die pflanzenpathogene Wirkung der Erdstrahlen. II. *Phytopathologische Zeitschrift*, Berlin 1926, Bd. IX, Heft 3, S. 325-336, Abb. 1. Zitierte Literatur, S. 336.
[See this *Bulletin*, 1935, No. 4, p. 94].

GÉRARD. Les effects du froid (hivers 1929-30 et 1932-33, 1933-34) sur les végétaux exotiques introduits à Montoire-sur-Loir (Loir-et-Cher). *Bulletin de la Société Nationale d'Acclimatation de France*, Paris, 1936, 83e année, mai-juin 1936, p. 124-130.

GITMAN, L., und BOITSCHENKO, E. Zur Frage der Verschiedenheit der zwei Septorien des Kendyrs *Septoria littorea* Sacc. und *Septoria apocyni* Chochrjak. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 3, S. 337-347, Abb. 1-9. Literaturverzeichnis, S. 347.
[On *Apocynum venetum*].

GODFREY, G. H. The pineapple root system as affected by the root-knot nematode. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 408-428, figs. 1-5. Literature cited, pp. 427-428.
[*Heterodera marioni* on *Ananas comosus*].

GOFFART, H. Heterodera schachtii Schmidt an gemeiner Hanfnessel (Galeopsis tetrahit L.) und an Kakteen. *Zeitschrift für Parasitenkunde*, Berlin 1936, 8. Bd., 5. Heft, S. 528-532, Abb. 1-2. Schriftenverzeichnis, S. 532.

GUBA, E. F. Resistance to Cladosporium fulvum. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 382-386. Literature cited, pp. 385-386.

Guilbert, F. Maladie du cœur de la betterave. *Bulletin de l'Association des Chimistes*, Paris, 1936, 53ᵉ année, nº 1, p. 23-30, 1 carte.
[With titles and summaries in both English and German. — *Phoma betae*].

Güssow, H. T. Plant quarantine legislation - A review and a reform. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 465-482.

Hildebrand, E. M., and **Phillips**, E. F. The honeybee and the beehive in relation to fire blight. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 10, pp. 789-810, figs. 1-2. Literature cited, pp. 809-810.
[*Erwinia amylovora = Bacillus amylovorus*].

Hilitzer, Alfred. Vliv strupovitosti na transpiraci hrušek. *Sbornik Československé Akademie Zemědělské*, Praha 1936, roč. XI, seš. 1, str. 118-121.
[In Czech, with title and summary in French:— 'L'influence du Fusicladium sur la transpiration des poires'. — *Fusicladium pirinum*].

Hiroe, Isamu (= **Matsuura**, I.). Brachysporiose of plants. (V). On new leaf blight diseases of certain plants of Gramineae and Cyperaceae (2). *Tottori Nôgaku-Kwaihô*, Tottori, Nippon, 1935, Vol. V, No. 3, pp. 175-188, 1 pl. [Literature cited], p. 186.
[In Japanese, with title and summary in English. — *Brachysporium* spp.].

Hoffmann, William E. Alucita niveodactyla Pag. (Microlepidoptera: Pterophoridae), a pest of sweet potatoes in Kwangtung. *Lingnan Science Journal*, Canton, China, 1936, Vol. 15, No. 2, pp. 311-312, figs. 1-3.
[In English, with title and summary in Chinese].

Hodges, F. Allen. Fungi of sugar beets. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 550-563, figs. 1-4. Literature cited, p. 563.

Hopkins, J. C. S. Annual report of the senior plant pathologist for the year ending 31st December, 1935. (*Continued*). Part II. — Tobacco research. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 7, pp. 485-494, 4 pls.
[See also this *Bulletin*, 1936, No. 8, p. 185].

Ingram, J. W. and **Summers**, S. M. Transmission of sugarcane mosaic by the rusty plum aphid, Hysteroneura setariae. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 11, pp. 879-887.

Jacentkovský, Dim. Oekologická studia lesních kuklic (*Tachinidae*, Dipt.) oblasti lednické na Moravě. *Lesnická Práce*, Pisek 1936, roč. XV, čis. 6, str. 339-348.
[In Czech, with title and summary in French:— 'Etudes oecologiques sur les Tachinaires des forêts aux environs de Lednice (Moravie)'].

Jack, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 42, May, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 7, p. 508.
[*Nomadacris septemfasciata*].

Janisch, Ernst. Physiologische Grundlagen der Nonnenprognose. *Anzeiger für Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 7, S. 77-82, Abb. 1-5. Schrifttum, S. 82.
[*Lymantria monacha*].

Jannone, Giuseppe. Su alcuni Ortotteri della Palestina con descrizione di una specie nuova del gen. *Homorocoryphus* Karny. *Memorie della Società Entomologica Italiana*, Genova, 1936, vol. XV, pp. 78-92, figg. I-V. Bibliografia, pp. 91-92.
[Enumeration of 19 species and 1 variety collected in Palestine. *Homorocoryphus eurostratus* (fam. *Phasgonuridae*) is described as a species new to science. Supplementary information is given on the subject of several species as yet little known].

Kambayashi, T., und **Otake**, S. Über die Tierpathogenität pflanzenpathogener Pilze, insbesondere von Fusarium solani (Mart. pr. p.) App. et Wr. *Zeitschrift für Parasitenkunde*, Berlin 1936, 8. Bd., 5. Heft, S. 611-616, Abb. 1-3.

Khudyna, I. P. The virus diseases of tobacco plants in the U S S R. (Narkompishcheprom S S S R.-Glavtabak. Vsesoiuznyi Nauchno Issledovatelskii Institut Tabachnoi i Makhorochnoi Promyshlennosti im. A. I. Mikoiana (V. I T. I. M), Sektor Zashchity Tabaka. Vypusk No. 126). Krasnodar, 1936, 79 pp. [Literature], pp. 76-77.
[In Russian, with title and summary in English].

Klein, H. Z. Contribution to the knowledge of the red spiders in Palestine. I. The oriental red spider, *Anychus orientalis* Zacher. *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No 4, pp 107-111, figs 1-4, No. 5, pp. 126-132, figs. 5-12. Literature, see Hebrew text, No. 5, p. 112

Kluyver, A. J , and **van Niel**, C. B. Prospects for a natural system of classification of bacteria *Zentralblatt fur Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abt , Jena 1936, 94. Bd , Nr. 19/23, S 369-403, Fig. 1.

Kovachevsky, Iv. Chr. The bacterial blight of cumin, *Phytomonas cumini* n. sp. *Bulletin de la Société Botanique de Bulgarie*, Sofia, 1936, Vol. VII, p 26-44, figs. 1-3. Literature, p 43.
[In Bulgarian, with title and summary in English].

Kunkel, L. O. Powdery mildew of potato in New Jersey. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 392-393, fig 1.
[*Erysiphe solani* ?].

Kylasam, M. S. On some control experiments on the Deccan grasshopper (*Colemania sphenarioides*, B.), *The Madras Agricultural Journal*, Coimbatore, S. India, 1936, Vol. XXIV, No. 5, pp. 165-169, 1 pl.

Li, Feng-swen. Pink bollworm problem. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, Nos. 16-17, pp. 322-334.
[*Platyedra gossypiella*].

Lindquist, Juan C. La « quemadura » de las hojas de narcisos y junquillos (Stagonospora curtisii). *Revista Argentina de Agronomia*, Buenos Aires, 1935, tomo 2, n.º 7, págs. 237 a 244, figs. 1-4. Bibliografía, pág. 244.

Lui, Yung, and **Wang**, Fey-hoi. Conspectus of insect pests and plant diseases in Chuki in 1935. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, Nos. 16-17, pp. 345-348.
[In Chinese, with title also in English].

Ma, Tsing-chao. A deductive study on the correlation of drought and locust outbreak in Kiangsu during T'sing dynasty. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 18, pp. 362-374, 2 graphs.
[In Chinese, with title also in English].

Marchionatto, Juan B. La « agalla del cuello » de la alfalfa (Urophlyctis alfalfae) en la Argentina. *Revista Argentina de Agronomia*, Buenos Aires, 1936, tomo 2, nº 8, págs. 359 y 360.

Massalab, N. A. Diseases of the essential oil plants in the Crimea. *Soviet Subtropics*, Moscow, 1936, [No.] 3 (19), pp. 48-53, figs. 1-7.
[In Russian, with title and summary in English].

Méneret, G. Influence des piqûres de punaises sur la qualité des blés. *Le Sélectionneur*, Versailles, 1936, vol. V, fasc. 1, p. 33-42. Bibliographie, p. 42.
[*Aelia* and *Eurygaster* spp.].

Miestinger, K. Versuche zur Bekämpfung der Feldmäuse. *Neuheiten auf dem Gebiete des Pflanzenschutzes*, Wien 1936, 29. Jahrg., Folge 3, S. 93-95.

Millán, Roberto. El pulgón « Myzus persicae » como nueva plaga en los cultivos de papa de la República Argentina. *Revista Argentina de Agronomia*, Buenos Aires, 1936, tomo 3, nº 1, págs. 23 a 26.

Moore, M. B. A method for inoculating wheat and barley with loose smuts. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 397-400, fig. 1.
[*Ustilago tritici* and *U. nuda*].

Morstatt, H. Kaffee-Schädlinge und-Krankheiten Afrikas. *Der Tropenpflanzer*, Berlin 1936, 39. Jahrg., Nr. 3, S. 91-118, Abb. 21-28; Nr. 7, S. 273-299, Abb. 29-43.

Murphy, H. C. Reaction of the Victoria oat variety to crown rust. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 396-397.
[*Puccinia coronata avenae*].

Neatby, K. W. Factor relations in wheat for resistance to Puccinia graminis tritici, Puccinia glumarum and Erysiphe graminis. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 360-374. Literature cited, pp. 373-374.

Neuweiler, E. Die Bekämpfung der Herzkrankheit der Runkelrüben. *Landwirtschaftliches Jarbuch der Schweiz*, Bern 1936, L. Jahrg., Heft 3, S. 273-291, Abb. 1-2. Literatur, S. 291.
[With a summary also in French. — This disease of mangolds is attributed to physiological disturbances due to different causes].

Ohara, Kiyoshi. The effect of temperatures and chemicals upon the water-melon wilt fungus, *Fusarium niveum* E. F. Smith. *Tottori Nôgaku-Kwaihô*, Tottori, Nippon, 1935, Vol. V, No. 4, pp. 245-253. [Literature cited], p. 253.
[In Japanese, with title also in English].

Parker, M. C. Inheritance of resistance to the common mosaic virus in the bean. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 12, pp. 895-915, fig. 1. Literature cited, pp. 914-915.

Passecker, F. Ein neuer Unkrautpilz auf Champignonbeeten. (*Pleurotus Passeckerianus* Pilát). *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 6, S. 271-277, Abb. 1. Literatur, S. 277.
[*Pl. passeckerianus* and *Agaricus campester*].

Perlberger, J. Phytophthora stem and tip blight of citrus seedlings. *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No. 6-7, pp. 145-150, figs. 1-9. Literature, see Hebrew text, p. 130.
[*Phytophthora parasitica* and *Phyt. citrophthora*].

Peters, Gerh. Ein neues Verfahren zur Vakuumentwesung mit giftigen Gasen. *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 7, S. 82-88, Abb. 1-8.

Petri, Lionello. Se ed in quali limiti i composti del rame possano essere sostituiti da altri sali metallici o da altri prodotti nazionali nella fabbricazione degli anticrittogamici. *Nuovi Annali dell'Agricoltura*, Roma, 1936, anno XVI, n. 2, pp. 81-91.

Price, W. C. Virus concentration in relation to acquired immunity from tobacco ring spot. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 503-529, figs. 1-4. Literature cited, p. 529.
[A virus disease].

Prutenski, D. I. Pests of the subtropical crops of Middle Asia. *Soviet Subtropics*, Moscow, 1936, [No.] 2 (18), pp. 43-51, 5 figs. [Literature], p. 51.
[In Russian, with title and summary in English].

Pyenson, Louis, and **MacLeod**, G. F. The toxic effects of naphthalene on Bruchus obtectus and Tenebrio molitor in various stages of development. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 9, pp. 705-713, figs. 1-2. Literature cited, pp. 712-713.

Radoslawov, Al. VI-r Beitrag zur Flora der parasitischen Pilze Bulgariens. *Bulletin de la Société Botanique de Bulgarie*, Sofia, 1936, Vol. VII, p. 51-55.
[In Bulgarian, with title and summary in German.- A list of 36 parasitic fungi].

Raleigh, W. P., and **Bonde**, Reiner. Seed-potato treatment for rhizoctonia control in northeastern Maine, 1929 to 1933. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 321-343. Literature cited, p. 343.
[*Rhizoctonia solani*].

Rawlins, T. E., and **Tompkins**, C. M. Studies on the effect of carborundum as an abrasive in plant virus inoculations. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 578-587, fig. 1. Literature cited, pp. 586-587.

Ringuelet, G. J. « Claviceps purpurea » sobre especies de « Spartina » en la Bahía de Samborombón. *Revista Argentina de Agronomia*, Buenos Aires, 1935, tomo 2, n.º 7, págs. 250 a 252, 1 fig.

Riker, A. J., **Palmiter**, D. H., and **Hildebrand**, E. M. Some environmental factors influencing the development of hairy root on apple. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 9, pp. 715-721, figs. 1-4.
[*Phytomonas rhizogenes*].

Rivnay, E. Infestation of oranges by the Mediterranean fruit fly during the autumn in Palestine. *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No. 5, pp. 134-137.
[*Ceratitis capitata*].

Rohde, Th. Eine neue Krankheit der Sitkafichte in Deutschland. *Zeitschrift für Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 6, S. 277-284, Abb. 1-8.
[The causal agent of the disease attacking *Picea sitchensis* has not yet been identified with certainty].

Roonwal, M. L. On the existence of two different types of striped eyes among solitary type specimens of the desert locust, *Schistocerca gregaria* Forsk. *Current Science*, Bangalore, 1936, Vol. V, No. 1, p. 24, figs. 1-2.

Rosen, H. R. The influence of dry air on the longevity of the fire-blight pathogen. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 439-449, fig. 1. Literature cited, pp. 448-449.
[*Erwinia amylovora* = *Bacillus amylovorus*]

Sajóhelyi, István. Az elemi csapások kártételei az 1934/35. gazdasági évben. *Magyar Statisztikai Szemle*, Budapest 1935, XIII. évf., 11. sz., 983-991 o., 2 térkép.
[In Hungarian, with title and summary in French:— ' Les dommages causés par les sinistres dans l'année agricole 1934/35 '].

Schnellhardt, Otto F., and **Heald**, F. D. A study of the toxic action on gray-mold spores of cleaning solutions used in spray residue removal. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 564-577, figs. 1-2. Literature cited, pp. 576-577.
[*Botrytis cinerea*].

Smith, Clayton O. Crown gall on Araucaria Bidwillii. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 400-401, fig. 1.
[*Pseudomonas tumefaciens*].

Sokanowsky, Boris. Material zum Studium der Parasiten von Waldschädlingen. *Anzeiger für Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 6, S. 73-74

Soulié, H. La lutte contre le ver des pommes dans le Puy-de-Dôme. *Annales des Epiphyties et de Phytogénétique*, Paris, 1936, nouv. sér., tome II, fasc. 4, p 159-189, fig. 1-7. Bibliographie, p. 187-189.
[*Cydia pomonella*].

Squire, F. A. Recent entomological investigations, II *The Agricultural Journal of British Guiana*, Georgetown, 1936, Vol. VII, No. 1, pp. 21-26, pls. IV-V.
[*Colaspis hypochlora*, *Brassolis sophorae*].

Stanley, W. M. Chemical studies on the virus of tobacco mosaic. VI. The isolation from diseased Turkish tobacco plants of a crystalline protein possessing the properties of tobacco-mosaic virus. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 4, pp. 305-320, fig. 1. Literature cited, p. 320.

Stepanov, K. Dissemination of infective diseases of plants by air currents. *Bulletin of Plant Protection*, II Series: Phytopathology, Moscow, 1935, No. 8, 68 pp., 5 figs. [Literature cited], pp. 62-65.
[In Russian, with title and summary in English].

SUBKLEW, W. Experimentelle Untersuchungen über die Bekämpfung der Maikäferengerlinge mit Kalidüngemitteln. *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 6, S. 65-67. Literatur, S. 67.
[*Melolontha melolontha* and *M. hippocastani*].

SUBKLEW, W. Grundsätzliches zur Frage der Drahtwurmbekämpfung mit Düngesalzen. *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 6, S. 257-269. Schriftenverzeichnis, S. 265-269.
[*Elateridae*].

TAPKE, V. F The influence of seed hulling on loose smut in naturally inoculated oats. *Phytopathology*, Lancaster, Pa, 1936, Vol. 26, No 6, pp. 588-596. Literature cited, pp. 595-596
[*Ustilago avenae*].

TAYLOR, C. F. A method for the isolation of Actinomycetes from scab lesions on potato tubers and beet roots *Phytopathology*, Lancaster, Pa, 1936, Vol. 26, No. 4, pp.. 387-388.

TOMASZEWSKI, Walter, und FISCHER, Walter. Versuche mit Obstbaumkarbolineen und Baumspritzmitteln *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16 Jahrg, Nr. 8, S. 74-76

TRAPPMANN, Walter, und HILGENDORFF, Gustav. Grundsätzliches zur Frage der Obstbaumkarbolineum und Baumspritzmittel. *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg, Nr 8, S 73-74.

TROTTER, A[lessandro]. Il "verderame" dei tabacchi in cura *Bollettino Tecnico del R Istituto Sperimentale per la Coltivazione dei Tabacchi "Leonardo Angeloni"*, Scafati, 1936, anno XXXIII, n 2, pp. 67-72, tav. I-IV Pubblicazioni citate, p. 72.
[With title and summary in English — 'The 'verderame' alteration of curing tobaccos' -- The suggestion put forward by the Author that 'verderame' is a virus disease, either in an attenuated or latent form, has been confirmed by some experiments]

VALLEAU, W. D., and JOHNSON, E M Physalis subglabrata· a natural host of Bacterium angulatum *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No 4, pp 388-390.

VERGUIN, J. Comment défendre nos vergers et nos jardins contre leurs ennemis. Paris, Librairie J.-B. Baillière et fils, 1936, 304 p., 158 fig. (Petite Bibliothèque Horticole publiée sous la direction de J. Vercier).
[This manual gives the essential information necessary for recognising diseases, insects and other pests of plants grown in orchards and gardens. The first part contains tables showing damage caused by diseases or pests. After having laid down general principles for the guidance of cultivators for this determination, the plants are grouped in three categories: kitchen garden plants, fruit trees and ornamental plants. In each of these groups, the plants are ranged in alphabetical order.
The second part treats the various diseases and remedies to be used. These diseases are also distributed in three groups corresponding to the three categories of plants cultivated.

The third part treats, following the same plan, the insects and other animal pests and the methods of protection to be used against them.
The fourth and last part is devoted to various methods of control utilised against diseases, insects and other pests (cultural, mechanical, chemical and biological methods)].

VOLGER, K. Die forstliche Bodenerkrankung durch Rohhumusbildung. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg , Nr. 8, S. 76-77.

WALLACE, G. B. Second list of fungi and diseases of economic plants in Tanganyika Territory. Royal Botanic Gardens, Kew. *Bulletin of Miscellaneous Information*. London, 1936, No. 3, pp. 234-240.

WANG, C. S. Sclerospora graminicola on millet in Minnesota *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 462-464, figs. 1-2.
[*Sclerospora graminicola* on *Setaria italica*].

WARNER, Elsbeth E. Black rot of tomato, Lycopersicum esculentum, caused by Alternaria sp. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 6, pp. 530-549, figs. 1-8. Literature cited, p. 549.

WARTENBERG, Hans, und LINDAU, Gero. Studien über die "Dehydrasewirkungen" gesunder und abbaukranker Kartoffelknollen. *Phytopatologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 3, S. 297-324. Schriftenverzeichnis, S. 323-324.

WEIDNER, Herbert. Der Hausbock. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 7, S. 305-326, Abb. 1-20. Literaturverzeichnis, S. 321-326.
[*Hylotrupes bajulus*].

WENZL, H[ans]. Epidemisches Auftreten von Botrytis parasitica Cav. auf Tulpen. *Neuheiten auf dem Gebiete des Pflanzenschutzes*, Wien 1936, 29 Jahrg , Folge 3, S. 96.

WENZL, Hans. Eine neue Blattfleckenkrankheit des Apfels (*Phyllosticta angulata* n. sp.). *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 3, S. 349-356, Abb. 1-2. Schriftenverzeichnis, S. 356.
[Description of the new species in German].

WOLLENWEBER, H. W., und HOCHAPFEL, H. Beiträge zur Kenntnis parasitärer und saprophytischer Pilze. I. Phomopsis, Dendrophoma und Ascochyta und ihre Beziehung zur Fruchtfäule. *Zeitschrift für Parasitenkunde*, Berlin 1936, 8. Bd., 5. Heft, S. 561-605, Abb. 1-20.

YARWOOD, Cecil E. The diurnal cycle of the powdery mildew, Erysiphe polygoni. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 9, pp. 645-657, fig. 1.

YARWOOD, Cecil E. Host range and physiologic specialization of red clover powdery mildew, Erysiphe polygoni. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 52, No. 9, pp. 659-665, fig. 1. Literature cited, pp. 664-665.

YOUNG, H. C., and BECKENBACH, J. R. Spreader materials for insoluble copper sprays. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 5, pp. 450-455, figs. 1-2.

ZILLIG, Hermann. Witterung und Auftreten von Rebenfeinden in den deutschen Weinbaugebieten im Jahre 1935. *Wein und Rebe*, Mainz 1936, 18. Jahrg., Nr. 2, S. 47-61.

NOTES

Official Correspondents. — Mr A. A. BITANCOURT, Sub-director of Plant Biology at the 'Instituto Biologico de Defesa Agricola e Animal' of the State of São Paulo, Brazil, and Mr. J. P. DA FONSECA, Chief of the Section of Agricultural Entomology and Parasitology of the said Institute, have been appointed official correspondents to the International Institute of Agriculture for all questions relative to plant protection in the State of São Paulo

A Plant Protection Section at the Hungarian Ministry of Agriculture. - A special Section has recently been established at the Ministry of Agriculture at Budapest for the organisation of plant protection in Hungary in close connection with the other centralised Services of the said Ministry. Dr Sándor Antalffy, Ministerial Councillor, has been appointed Chief of this Section

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Locust Invasion during the Years 1935 and 1936 †

The present report completes the previous report (see this *Bulletin*, 1936, No. 2, pp. 26-27), relating to the invasion of the South American locust (*Schistocerca paranensis*) which took place in the Republic during the period 1935-1936.

The 'voladora de invierno' infested a very vast region, embracing part of the following zones: provinces of Buenos Aires, Santa Fé, Entre Ríos, Córdoba, Corrientes, Santiago del Estero, San Luis, Tucumán, Salta, and La Rioja, and the national territories of Chaco and Formosa, that is to say, the whole country excepting Patagonia, the most infested provinces being the first four mentioned and especially the province of Buenos Aires.

Notwithstanding this enormous region the actual area infested was 325.062 km^2, and 1.234.173, 1.582.635, 545.552 and 483.629 during the years 1932, 1933, 1934, and 1935, respectively.

To carry out the control the regular funds at the disposal of the 'Dirección de Defensa Agrícola' were increased by 5 million 'pesos' which were specially granted by the National Congress for this purpose. The first stage consisted of destroying the adults to the amount of 6.984 360 kilograms. Then an incalculable quantity of eggs were destroyed chiefly by means of ploughs.

The larvae were extensively controlled by means of flame throwers, soapy solutions and 'Larvicida D. A.', prepared by the 'Fábrica Oficial de Insecticidas y Fungicidas' at Tigre, dependent on the 'Dirección de Sanidad Vegetal'. It is calculated that 4.773.852 kilograms of larvae were destroyed.

The culminating period of the campaign then followed: hopper control, the amount destroyed being 204.901.719 kilograms. Barriers placed strategically gave, as in other seasons, admirable results. The State distributed 41.844.845 metres of this material. Poisoned baits were also utilized though on a reduced scale. Fortunately we are able to report that the damage caused to the principal crops of the country was small especially in respect of wheat and flax, while, as regards maize, a crop which always is in constant danger from locust invasions, the loss was only 10 %.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Dr. JUAN F. TOMASELLO, Director of 'Defensa Agrícola', transmitted by the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, 'Ingeniero Agrónomo', Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

Eritrea: Locusts *

During the months of July and August, 1936, no locusts were reported in the Colony.

Italy: Numerous Outbreaks of *Locusta migratoria* L. ph. *gregaria* (Typical) and Phases of Transition in the Province of Naples †

For the first time in the province of Naples and in all central-southern Italy and the islands, including the most eastern regions of northern Italy, numerous accumulations of *Locusta migratoria* L. ph. *gregaria* (typical) have appeared this year accompanied by individuals of phases of transition, more or less numerous according to the zones, and being very varied in colouring, ranging from yellowish cream to grass-green and earth-brown, contrary to the gregarious individuals which are very brillantly coloured in yellowish orange and velvety black on the abdomen. For this reason these latter are distinguished by the local name of ' a rille russe ' which means in Italian ' cavalletta rossa '.

The ph. *gregaria* (=*L. migratoria* L. ph. *migratoria*) in contrast to the ph. *solitaria* (= *L. migratoria* L. ph. *danica* L. or *Pachytylus danicus* L.) has, up to the present, been considered by taxonomists and biologists as not liable to develope in our continent in such proportions as to require artificial control. Now, however, it has been observed in the province of Naples (Pantano di Sessa Aurunca and Pantano di Mondragone) that *L. migratoria* L. has arrived at the extreme limit of its gregariousness, with youngs and adults in very numerous accumulations which move about, settle, break up and re-assemble and traverse dykes and ditches with great mobility and facility.

The particular zones where the infestation was discovered and where an intense control is being carried out are: — Centore, Parco Nuovo Irace, Parco della Fica, 75 Moggia, Bocche di Pantano (for Pantano di Sessa Aurunca), and Parco Pacifico, Argini di Forma Chiuppara, Pettiglia, Mazzasette, Ripa Larga, Ripa Matriciana, Contrada Pedoloni, Contrada Ariella (for Pantano di Mondragone). Its development certainly began towards the middle of July (data obtained by analogy and induction), given that on 3 September, 1936, the date on which this exceptional infestation was discovered, the mass of insects had already arrived at the stage of second nymph, in an advanced condition, with also a few adults and various larvae and first nymphs. Owing to the agricultural physionomy of the above mentioned regions where (and especially in respect of Pantano di Sessa Aurunca) wheat is the predominating winter and spring crop and on account of the enormous voracity of the individuals belonging to the ph. *gregaria* of *L. migratoria* L. in respect of the graminaceous plants in general both wild and cultivated, it was extremely fortunate for the farmers that the biological cycle took place at a later epoch in relation to that of other species in the neighbouring territories, namely, *Dociostaurus maroccanus* Thunb., *Calliptamus barbarus* (Costa) and *C. italicus* L. If the accumulations of *L. migratoria* L. ph. *gregaria* had appeared in the months of April and May to the same extent as those of *Dociostaurus*, considerable losses would have been experienced in the wheat, still green, owing to the great voracity of these insects, caused by the large size of the individuals, and on account of the fact that they do not readily eat poisoned baits.

---

* Communication from the official correspondent of the Institute, Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

† Communication from Dr. GIUSEPPE JANNONE, Assistant, Institute of Agricultural Entomology, Faculty of Agriculture, Royal University of Naples, transmitted to the International Institute of Agriculture by the Director, Royal Laboratory of Agricultural Entomology, Portici, Naples.

Now, at the period of development, the plant that suffered most was late maize (called locally 'seme-freddo' or 'cinquantino'), sown as a second crop after wheat or haricot beans or as the principal crop after the natural drying up of the soil, which was still in the green state and, in certain parts, had not yet formed ears in the first ten days of September, chiefly in Pantano di Mondragone; also tomato fruits suffered greatly in Parco Nuovo Irace. Plants of melons, water-melons, marrows, lucerne, tomatoes (leaves and stems), sunflowers, castor-oil, cabbages (plants in nurseries) were left untouched even when in direct contact with very numerous accumulations of nymphs and adults. Among the wild plants, the hydrophyl, mesophyl and xerophyl Gramineae, also a very few of species belonging to other families, suffered particularly; in certain cases, were even destroyed having caused the stoppage of and had even attracted accumulations of first and second nymphs. This beneficial influence of the wild flora very abundant in Gramineae along the bottoms of water canals has always been very apparent.

The control was organised and started at once, after the discovery on 3 September, by the Royal Phytopathological Observatory of the Campania and Calabria, with headquarters in Portici, in collaboration with the Provincial Commissariat for Plant Diseases, attached to the Royal Agricultural Inspectorate of the province of Naples. The provisions for the control and technical advice relative thereto were supplied, after a careful inquiry in the infested zones, by the writer of the present communication and by Dr. Giuseppe Russo, Inspector of the above mentioned Observatory and Director in charge of the Royal Laboratory of Agricultural Entomology during the absence of Prof. F. Silvestri.

Minute bio-ecological investigations of the phases of *L. migratoria* L. have been stared, also biometrical measurements of individuals collected in the new zone of infestation; these observations and measurements will be continued uninterruptedly. At the laboratory artificial breeding has already been initiated.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) *

During the month of May, 1936, from the north of the Colony, some swarms are reported in the south-east of Niassa Province, in Madimba, near Ribaué, proceeding from the South.

---

* Communication from Mr. JÚLIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the 'Repartição Tecnica de Agricultura' of the Colony.

In the central part, the movement of some swarms has begun, taking a northerly direction, the greater part of these swarms came from the territories of Manica and Sofala.

In the south of the Colony, the locust movement has been practically limited to the circumscription of Maputo. In this region, many hopper bands have been observed. These have been controlled, but many have attained the winged stage and remain in the district moving now towards the North, now towards the Zululand frontier.

In conclusion, the general state of the Colony has greatly improved this year, the swarms being concentrated in the regions of Maputo and Zambezi.

During the month of June, 1936, information is lacking on the existence of locusts in the north of the Colony.

In the centre, in the districts of Quelimane and Tete, a few swarms have appeared which flew about in various directions, causing some damage.

In the south, the existence of swarms has been reported in the circumscription of Vilanculos. A large swarm also passed by Matola.

A small swarm was seen in Namachacha at the junction of the frontier with Swaziland.

The present situation, compared with the same period last year, is good in the north and has also improved in the centre and south.

Southern Rhodesia: Locust Invasion, 1932-1936 *

Monthly Report No 43. June, 1936.

Few reports of locusts have been received, and these have referred only to the Red Locust (*Nomadacris septemfasciata* Serv).

The last hoppers were destroyed or developed wings early in the month.

Winged swarms have been reported from the districts of:— Charter, Hartly, Chibi, Victoria, Mazoe, Lomagundi, Salisbury and Mrewa.

Most of these have been described as of " small " or " medium " size, but one swarm seen in the north of the Lomagunfi district on the 20th was described as " large ".

The position appears to have been very similar to that during June last year, except that the swarms have been smaller.

Monthly Report No. 44. July, 1936.

Winged swarms of the Red Locust have been reported from seven districts during the month, namely:— Salisbury, Mrewa, Lomagundi, Mazoe, Ndanga, Victoria, and Inyanga.

---

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F.E.S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

Some of these swarms have been described as large. No prevalent direction of flight is apparent from the reports, all four points of the compass being included.

The situation may be regarded as favourable compared with the preceding years of the present invasion.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

French West Africa. — In the session of 30 May, 1936, the Permanent Commission of the Council of the Government of French West Africa passed a resolution for the modification of the customs regime relative to insecticides and fungicides of foreign origin imported into the Colony, belonging to the group given preferential treatment. (*Journal Officiel de la République française*, Paris, 19 août 1936, LXVIII^e année, n° 193, p. 8977).

Germany. — By Circular of 6 August, 1936, directions are given for the control of rats.

The control should be carried out once only and should include the entire territory of the commune and those of neighbouring communes if the territories touch or are mixed. The best periods are the end of autumn and the beginning of spring when the rats are in their winter quarters and the work of control is not prevented by snow.

The police authorities will decide if it is preferable to entrust the control to owners of houses and land or to persons expert in the work. In the first case preparations with a squill basis may be used only, if the control is carried out by professionals the use of poisons is also permitted on the condition, however, that these are officially recognised and approved preparations and that the application is carried out in such a way as to entail no danger either for man or domestic animals. The use of bacterial preparations is forbidden.

The toxic preparations must be as varied as possible.

A rat refusing a given preparation should immediately find another which it may accept. After having removed all food stuffs and residues, the poisoned baits should be distributed in sufficient quantities. When the control is finished the remains should be collected and burnt. It is advisable that the effect of the control should be determined by an official.

At the end of the control all rat holes should be blocked with a mixture of cement and broken glass.

In general it is sufficient to organise a general control once or twice a year in the communes seriously infested. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1936, Bd. VIII, Nr. 6, S 138-139).

⁂ The Decree of 15 August, 1936, amends the Decree of 6 April, 1936, forbidding the use of phosphuretted hydrogen in the control of parasites [see this *Bulletin*, 1936, No. 6, p. 124]. The preparations giving off phosphuretted hydrogen are permitted if used in the control of vermin and if the products should act as stomach poison. (*Ibid.*, S. 137).

Germany (Bavaria). — By Notification of 19 February, 1936, relative to the control of black rust [*Puccinia graminis*], it is prescribed, in the provinces of Lower Bavaria and the Upper Palatinate, that shrubs of barberry [*Berberis*] growing at least 250 m. distance from all fields containing cereals should be destroyed. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1936, Bd. VIII, Nr. 5, S. 127-128).

Germany (Free City of Dantzig). — The Decree of 8 June, 1936, relative to the use of phosphuretted hydrogen in the control of parasites, corresponds to the provisions adopted in this respect by the Decree of 4 April, 1936 [see this *Bulletin*, 1936, No. 6, p. 124]. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1936, Bd. VIII, Nr. 5, S. 131).

Germany (Free City of Lübeck). — By Police Ordinance of 29 June, 1936, the public seed disinfection establishments have been put under official supervision. The provisions adopted correspond to those contained in the Decree of 4 June, 1934, for Prussian Saxony [see this *Bulletin*, 1934, No 11, p. 248].

A Notification, dated 30 June, 1936, relative to the application of the present Ordinance fixes, *inter alia*, that the persons charged with the functioning of the disinfection machine should be provided with masks for protection (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1936, Bd. VIII, Nr 5, S 128-130).

Germany (Mecklenburg). - By Decree of 10 August, 1936, the public establishments for seed disinfection have been subjected to official supervision. The provisions adopted correspond to those prescribed by the Ordinance of 29 June, 1936, in the Free City of Lübeck (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1936, Bd. VIII, Nr. 6, S. 140).

Germany (Oldenburg). — The Decree of 14 July, 1936, modifying the Decree of 4 February, 1935, relative to the protection of fields and gardens against pigeons [see this *Bulletin*, 1935, No. 5, p. 110], also provides for the protection of rape and other oleaginous crops. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1936, Bd. VIII, Nr. 5, S. 130).

Germany (Saar Territory). — By Police Ordinance of 27 April, 1936, for the protection against the Colorado beetle (*Leptinotarsa decemlineata*), all cultivated land, and especially land cultivated with potatoes, tomatoes and other Solanaceae is subject to official supervision.

A special protection service will be organised by the Corporation of Agriculture.

All holders of land and also all other persons who have observed the presence of the Colorado beetle or indications giving rise to the suspected presence of this insect are obliged to make a declaration immediately to that effect. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1936, Bd. VIII, Nr. 6, S. 140-141).

⁂ By Police Ordinance of 31 July, 1936, with a view to the immediate recognition of the possible presence of the Colorado beetle, tours of supervison have been established to be carried out on certain fixed days.

As a general rule, it is established that these tours of supervision will take place once a week. The Police authorities will fix and publish the date.

All holders of land cultivated with potatoes and tomatoes are obliged to examine these crops, on the fixed days, for the presence of the Colorado beetle. (*Ibid.*, S. 141-142).

Argentine Republic. — The Decree No. 78.377 of 14 March, 1936 authorizes the Department of Agriculture to expend the sum of 600,000 'pesos' to cover expenses in the control of the South American locust [*Schistocerca paranensis*] up to the end of the present season. (*Boletin Oficial de la República Argentina*, Buenos Aires, 30 de mayo de 1936, año XLIV, núm. 12.574, pág. 1123).

⁂ By Decree No. 82.299 of 12 May, 1936, the Department of Agriculture is authorized to expend the sum of 600.000 'pesos' on the control of the South American locust [*Schistocerca paranensis*]. (*Ibid.*, 21 de julio de 1936, núm. 12.614, pág. 692).

⁂ By Decree No. 82.526 of 15 May, 1936, all persons, business enterprises or bodies proposing to produce seeds of Sudan grass (*Sorghum vulgare* var. *sudanense*) and sweet sorghum (*S. vulgare* var. *saccharatum*), for the purpose of sale, are obliged to be entered, sixty days before the date of sowing, in a register opened, for this purpose, by the 'Dirección de Sanidad Vegetal'.

The entries will include the name and address of the producer, site of cultivation, area intended for sowing and origin of the seeds for multiplication

For authorisation to be given to sow Sudan grass or sweet sorghum it should be previously determined that the land intended for this purpose contains no plants and rhizomes of Aleppo grass [*S. halepense*].

The only seed of Sudan grass and sweet sorghum that may be used for sowing is that for which has been obtained the official certificate of analysis certifying the non-existence of Aleppo grass.

If during the period of cultivation of this seed the existence of plants of Aleppo grass is determined it will be declared as unfit for seed production.

Seeds of Sudan grass and sweet sorghum which in the following year are intended for sowing in the registered seed farms should be subjected also to physical-chemical analysis. (*Ibid.*, 27 de julio de 1936, núm. 12.619, pág. 93).

⁂ The Decree No. 85.193 of 26 June, 1936, regulates the Law No. 12.297 which authorises the acquisition of potato seed from abroad. (*Ibid.*, págs. 931 y 932).

⁂ The Decree No. 85.635 of 4 July, 1936, authorises the Port of Rosario to introduce non-disinfected cotton seed destined exclusively for industrial uses and providing that it is transported by river and if it is utilised in the manufacture of vegetable oils situated within the zone of the Port or on the banks of the Paraná river.

The 'Dirección of Sanidad Vegetal' will supervise the transport of non-disinfected seed and its industrial preparation, will issue the corresponding transport permits and see that the said factories carry out daily incineration of the residues of manufacture.

The removal and transport of used empty sacks or other packing material utilised for cotton seed by the factories interested, is prohibited unless previously disinfected by the said factories and certified by the 'Dirección de Sanidad Vegetal'. (*Ibid.*, pág. 932).

Australia (Commonwealth of). — The Ordinance No. 7 of 1936, dated 26 February, 1936 and which may be cited as the 'Noxious Weeds Ordinance 1936', amends the Noxious Weeds Ordinance 1921-1922. (*Commonwealth of Australia Gazette*, Canberra, 27 February, 1936, No. 27, pp. 339-340).

Australia (Western Australia). — By Order in Council of 12 March, 1936 Regulation 48A of the Regulations under 'The Plant Diseases Act, 1914-1935', published in the *Government Gazette* on 16 September, 1921, as amended by Order in Council published in the *Government Gazette* on 24 October, 1930, is repealed, and a new Regulation is inserted in lieu thereof, as follows:—

48A. Any person having in his possession any seeds of the tobacco plant may request any inspector to examine such seeds to ascertain whether or not such seeds are infected with disease, and to advise as to the method of treatment to eradicate such disease, and such inspector shall, upon payment of the fee prescribed under Regulation 9 of these Regulations, examine the said seeds, and, if in his opinion they are infected with any disease, shall advise as to the best method of treatment to eradicate such disease. (*Government Gazette of Western Australia*, Perth, March 20, 1936, No. 17, p. 415).

⁂ By Order in Council of 13 May, 1936 a Regulation, to stand as Regulation 48B, is inserted after Regulation 48A of the Regulations made and published in the *Government Gazette* on 16 September, 1931, as amended by Order in Council made and published in the *Government Gazette* on 24 October, 1930, as follows:—

48B. The occupier of any land on which the tobacco plant has been grown shall, not later than the 30th day of May in every year, gather and effectively destroy by fire all tobacco plants and parts thereof, and the roots and waste products of all such plants then being on or upon such land or in any place under his control. Provided that this Regulation shall not apply to the leaves of tobacco plants which have been gathered and retained for curing, or to the seeds of tobacco plants which have been harvested. (*Ibid.*, May 22, 1936, No. 27, pp. 729-730).

Australia (Queensland). — The Diseases in Plants Acts and Fruit and Vegetables Act Amendment Act of 1935, assented to 7 November, 1935, amend The Diseases in Plants Acts, 1929 to 1934 in certain particulars. (*Queensland Government Gazette*, Brisbane, 13th November, 1935, No. 121, pp. 1395-1398).

Belgium. — The Ministerial Decree of 9 July, 1936, authorises, up to 25 August inclusively, the capture of sparrows by means of a net known as 'tirasse', and by no other means, in the neighbourhood of Termonde and Saint-Nicolas. (*Moniteur Belge*, Bruxelles, 16 juillet 1936, 106^e^ année, n° 198, p. 4860)

Straits Settlements. — By Notification No. 1485 have been published the Plant Importation Rules, 1936, regulating the importation of plants into the Colony, by aircraft and sea. (*Straits Settlements Government Gazette*, Singapore, May 29, 1936, Vol. LXXI, No. 47, pp. 1405-1409).

Federated Malay States. - By Notification No. 3659, published on 23 August, 1935, the importation of plants and parts of plants belonging to certain genera and species (*Hevea*, *Gossypium*, *Coffea*, with the exception of dry berries, *Saccharum officinarum*, *Camellia sativa*, etc.), also the importation of shoots of all varieties of *Musa sapientum*, fruits of the various species of *Elaeis*, fruits of *Cocos nucifera* and all living parts of *Ananas sativus*, with the exception of pineapple fruits from the Netherlands Indies, are subjected to the following rules: —

Importation should take place by sea (by the port of Swettenham) or by post through the bureaux of the Adviser on Agriculture or the Chief Agricultural Field Officer. Before expediting the products application should also be made to these bureaux for permission to import.

Importation will be permitted on conditions that (1) the consignments are accompanied by a certificate issued by a person recognised by the competent authority of the Federated Malay States certifying that the consignment has been inspected by the said person and found to be free from all diseases and pests of plants, and that (2) the consignment, on its arrival, is subjected to phytopathological inspection.

The official carrying out the inspection is authorised to permit the delivery of the merchandise or to place it in quarantine and subject it to the disinfection treatment he considers necessary, or else to have it destroyed according to the result of the inspection.

Consignments failing to conform to these provisions may be returned. (*Deutsches Handels-Archiv*, Berlin, 1. Juliheft 1936, 90. Jahrg., S. 1927-1928).

France. — By Ministerial Decree of 7 July, 1936, the prohibition contained in Article 1 of the Decree of 8 March, 1932 [see this *Bulletin*, 1932, No. 4, p. 57] relative to measures to be taken for preventing the introduction into France of San José scale (*Aspidiotus perniciosus*) is applicable to consignments originating from the territories of the Union of Socialist Soviet Republics, Yugoslavia and Uruguay.

The importation into France of fresh fruits originating and coming from the above mentioned territories, is authorised only by the custom-houses nominated in the Ministerial Decree of 9 May, 1932 [see this *Bulletin*, 1932, No. 6, p. 100] and by the custom-house of Kehl-Strasbourg. (*Journal Officiel de la République française*, Paris, 11 juillet 1936, LXVIII^e^ année, n° 162, p. 7278).

Hungary. — The Law No. XVII of 8 June, 1936, ratifies the International Convention for Plant Protection signed in Rome on 16 April, 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55]. (*1936. Országos Törvénytár*, 1936, junius 13, 6. szám, 167-188 o.).

Italy. — By Ministerial Decree of 14 June, 1936, a competition has been opened in which prizes will be awarded to persons who carry out the cultivation of pyrethrum (*Chrysanthemum cinerariaefolium*) on a commercial basis. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 22 luglio 1936, anno 77°, n. 168, p. 2323).

⁂ By Ministerial Decree of 16 July, 1936, the commune of Tuscania in the province of Viterbo has been declared infested with grape phylloxera. (*Ibid.*, 28 luglio 1936, n. 173, p. 2470)

⁂ By Ministerial Decree of 28 July, 1936, the commune of Montefalco, in the province of Perugia, has been declared infested by grape phylloxera. (*Ibid.*, 19 agosto 1936, n 151, p. 2636)

⁂ A Ministerial Decree of 29 July, 1936, establishes the rules to be followed, from the phytosanitary point of view, for temporary importation of potatoes from abroad intended exclusively for planting, for the farming season 1936-1937. (*Ibid.*, 31 luglio 1936, n. 176, pp. 2500-2501).

Morocco (French Zone). — By 'Dahir' of 8 June, 1936 (18 rebia I 1355) a Direction of Economic Affairs is established within the Administration of the Protectorate which includes, *inter alia*, the Service of Agriculture and Colonization, the Service of Trade and Industry and the Sherifian Office of Control and Exportation.

The Direction of Waters and Forests is attached to the Direction of Economic Affairs.

The Service of Agriculture and Colonization includes among its functions plant protection and phytosanitary inspection.

The Direction General of Agriculture, Trade and Colonization is abolished.

The Service of Agriculture and the Service of Plant Protection and Phytosanitary Inspection are abolished. (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 12 juin 1936, XXV^e année, n^o 1233, p. 699-700).

⁂ With a view to preventing the introduction of *Synchytrium endobioticum*, also *Leptinotarsa decemlineata* and *L. multitaeniata*, the Vizirial Decree of 1 August, 1936 (12 joumada I 1355) fixes the sanitary measures to be applied to potatoes, tomatoes and eggplants on their entry into the French Zone of the Sherifian Empire.

The models of the control certificate of cleaning and packing of potatoes, tomatoes and eggplants and of the certificate of sanitary inspection of the said plant products are attached to the present Decree. (*Ibid.*, 28 août 1936, n^o 1244, p. 1060-1062).

⁂ By Decree of the Director of Economic Affairs, dated 20 August, 1936, the Decree of 27 July, 1936 [see this *Bulletin*, 1936, No. 9, p. 202] has been revoked and, at the same time, an enquiry has been opened in the circle of Chaouïa-nord (annex of Berrechid) and in the circle of Chaouïa-sud (post of Oulad-Saïd) with a view to constituting a Syndical Association for the control of 'pou rouge'. (*Ibid.*, p. 1084-1085).

⁂ A Decree of the Director of Waters and Forests, dated 11 August, 1936, authorises the destruction of wild boars causing great damage to the crops situated in certain localities of the territory of civil control of Rabat-banlieue. (*Ibid.*, 18 août 1936, n^o 1242 *bis*, p. 1033).

Mexico. — By Circular No. 31-I-44259 of 27 June, 1935, the list of fungicides and insecticides officially permitted by virtue of the Decree of 8 June, 1934 [see this *Bulletin*, 1935, No. 3, p. 64] has been extended in that it now contains 70 products. (*Deutsches Handels-Archiv*, Berlin, 2. Juniheft 1936, 90. Jahrg., S. 1773).

⁂ By Circulars Nos. 31-I-48105 and 31-I-47850 of 11 and 12 July, 1935 it is understood that the fungicides and insecticides officially recognised and permitted may be imported by all importers.

The products intended for the destruction of vermin are not subject to the dispositions of the above mentioned Decree. (*Ibid.*, S. 1773-1774).

New Zealand. — An Order in Council of 8 January, 1936 prohibits the importation into New Zealand, save with the consent of the Minister of Internal Affairs, of insects, including the eggs of insects and insects in their larval, pupal and adult stages, and of spiders and scorpions and the eggs of spiders and scorpions. (*The New Zealand Gazette*, Wellington, January 16, 1936, Numb. 2, p. 74).

Dominican Republic. — By Regulation No. 1287 of 24 May, 1935, all persons wishing to import plants, parts of plants, seeds, bulbs, etc., should apply to the Ministry of Public Works, Agriculture, Industry and Commerce. The application should contain the names and addresses of the importer and the commissioner, the port of entry, an exact description of the plant products to be imported, the names of the various species of plants in question, their origin and the name and address of the exporting house.

The imports will be inspected on their arrival at the port of entry by the agent of the Phytopathological Service who will permit their entry if the authorisation to import has been granted and if the merchandise is considered in a healthy condition after phytopathologic inspection.

If, however, the merchandise is infested by plant diseases or pests its importation will be prohibited. Such consignments will be destroyed or placed in quarantine. If disinfection appears to be practicable they may be subjected to and appropriate treatment at the expense of the party interested. (*Deutsches Handels-Archiv*, Berlin, 2. Juniheft 1936, 90. Jahrg., S. 1715-1716).

Rumania * -- By Decision No 1 1816 of the Council of Ministers, dated 29 August, 1936, the phytopathological control of all agricultural products (plants, parts of plants, flowers, fruits, seeds, etc.), intended for importation or exportation, may only be carried out by the special organs of the Institute of Agronomical Research of Rumania and by the officers of the Plant Protection Service, all of whom have been specially charged with the work.

Salvador. — The Decree No. 56 of 30 May, 1936, declares the necessity for, and public utility of, the control of diseases and pests affecting crops also the control of diseases of a general character attacking live-stock.

The Decree also authorises the free introduction of substances and apparatus necessary for the destruction of these diseases and pests provided that a permit for this introduction is obtained by those interested in the control from the Ministry of Agriculture. (*Diario Oficial*, San Salvador, 20 de junio de 1936, tomo 120, núm. 136, pág. 1845).

RECENT BIBLIOGRAPHY

ALFARO CARDOSO, J. G Doenças das citrinas em Moçambique *Boletim da Sociedade de Estudos da Colónia de Moçambique*, Lourenço Marques, 1935, ano IV, nº 27, pags. 179-188, nº 28, pags 251-259, 1936, ano V, nº 30, pags. 125-135.

ALVARADO, Juan Antonio Resistencia de algunos insectos a la acción mortífera de ciertas substancias demostradamente venenosas por otras especies. *Revista Agricola*, Guatemala, 1936, vol XIV, núm 1, págs 68 a 72.

ARNAUD, G., et BARTHELET, J Les microconidies dans le genre Sclerotinia. *Bulletin trimestriel de la Société mycologique de France*, Paris, 1936, tome LII, fasc 1, p. 63-79, fig. 1-8 Bibliographie, p 76 79

---

* Communication from the official correspondent of the Institute, Professor G. ARION, Chief of the Plant Protection Service, Ministry of Agriculture and Domains, Bucarest, Rumania

BALACHOWSKY, A., et VIENNOT-BOURGIN, L. Recherches sur le comportement du carpocapse en vue de l'établissement rationnel des traitements insecticides dirigés contre cet insecte. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1936, tome XXII, nº 22, p. 783-788. [*Cydia pomonella*].

BARNES, H. F. Insect fluctuations: population studies in the gall midges (Cecidomyidae). *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 433-440, fig. 1.

BARNES, H. F., and MERCER, S. P. Damage to panicles of *Alopecurus pratensis* L. by *Apamea secalis* L. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No. 3, pp. 653-657, fig. 1, pl. XXX. References, p. 653

BAWDEN, F. C. The viruses causing top necrosis (acronecrosis) of the potato. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 487-497. References, p. 497.

BEST, Rupert J., and SAMUEL, Geoffrey. The reaction of the viruses of tomato spotted wilt and tobacco mosaic to the *p*H value of media containing them *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 500-537, figs. 1-6. References, p. 537.

BLACK, M. W. Some physiological effects of oil sprays upon deciduous fruit trees. *The Journal of Pomology and Horticultural Science*, London, 1936, Vol. XIV, No. 2, pp. 175-202, figs. 1-8, 1 diagr., graphs 1-4. Bibliography, pp. 201-202.

BLANCHARD, Everard E. Dos tisanópteros nuevos para la República Argentina y algunos apuntes sobre especies vecinas. *Physis*, Buenos Aires, 1936, tomo XII, nº 42, págs. 103 a 109, figs 1-4 Referencias bibliográficas, pág. 109. [*Taeniothrips gladioli* and *Hercothrips femoralis*].

BOGOESCU, C., şi MANOLACHE, C Crematogaster scutellaris Ol. (Myrmicinae) în România. Extras din *Buletinul Societăţii Naturaliştilor din România*, [Bucureşti], 1936, nr. 8, p. 10-12.

BUGNICOURT, F. La nécrose de l'écorce saignée de l'hévéa. *Gouvernement général de l'Indochine. Institut des Recherches agronomiques*, Hanoi, 1936, 25 p, 9 pl. Bibliographie, p. 25. [*Fusarium theobromae* var. *heveae* n. var.].

CAMERON, A. E. *Adelges cooleyi* Gillette (Hemiptera, Adelgidae) of the Douglas fir in Britain: completion of its life cycle *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 585-605, figs. 1-3, pl. XXV. References, p. 605.

CAPPELLETTI, Carlo. Osservazioni sulla germinazione dei semi di *Orobanche gracilis* Sm. e *Orobanche crenata* Forsk. *Nuovo Giornale Botanico Italiano* (Nuova serie), Firenze, 1936, vol. XLIII, n. 1, pp. 263-266.

CECCHETTI, A. Sulla cascola eccezionale delle pesche nell'annata 1936. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 33, p 275, 2 figg [*Clasterosporium carpophilum*].

CHABROLIN, Ch. Le désherbage sélectif des céréales à l'aide des huiles phénoliques du goudron de houille. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1936, tome XXII, nº 22, p. 770-773.

CLEMENTE, Guglielmo. Le stazioni di segnalazione antiperonosporica nelle provincie di Firenze e Pistoia nel 1935. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1936, anno 82º e 62º, n. 17, pp. 344-347. [*Plasmopara viticola*].

COHEN, Morris. The biology of the chrysanthemum leaf-miner, *Phytomyza atricornis* Mg. (Diptera: Agromyzidae). *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 612-632, figs. 1-8, pl. XXVI. References, pp. 631-632.

CRANE, M. B., GREENSLADE, R. M., MASSEE, A. M., and TYDEMAN, H. M. Studies on the resistance and immunity of apples to the woolly aphis, *Eriosoma lanigerum* (Hausm.). *The Journal of Pomology and Horticultural Science*, London, 1936, Vol. XIV, No. 2, pp. 137-163, figs. 1-5. References, p. 163.

CURRIE, G.A. A report on a survey of weed problems in Australia. *Commonwealth of Australia. Council for Scientific and Industrial Research. Pamphlet No. 60*, Melbourne, 1936, 38 pp.

DANELIA, B. K. Diseases of the tea bush in West Georgia. *Soviet Subtropics*, Moscow, 1936, 8 (24), pp. 56-61, figs. 1-6.
[In Russian, with title and summary in English].

DAVIES, W. Maldwyn. Studies on the aphides infesting the potato crop. V. Laboratory experiments on the effect of wind velocity on the flight of *Myzus persicae* Sulz. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 401-408, fig. 1, pl. XVII. References, pp. 407-408.

DELAMARRE DE MONCHAUX. La sortie printanière des doryphores. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1936, tome XXII, n° 22, p. 792-795.
[*Leptinotarsa decemlineata*]

DE OLIVEIRA FILHO, M. L. O curuquerê. *Boletim de Agricultura, Zootechnia e Veterinaria*, Bello Horizonte, 1936, anno IX, num. 4, pags. 231-238, figs. 1-8.
[*Alabama argillacea*].

DIMITRIU, Florica L. Contribuţiuni la biologia cetonidului Epicometis (Tropinota) hirta Poda. Extras din *Analele Institutului de Cercetări Agronomice al României*, Bucureşti, 1936, anul VI (1935), vol. VII, 26 p., 10 fig. Bibliografie, p. 23-26.
[In Rumanian, with summary in German].

DIVISION OF MYCOLOGY. A list of the diseases of cultivated plants in Ceylon. *Department of Agriculture, Ceylon. Bulletin No. 88*, Colombo, 1936, 47 pp.

D'OLIVEIRA, Branquinho. Tipo da germinação dos conídios dos Fusicladia, dendriticum, pirinum e Eryobotryae. *Revista Agronómica*, Lisboa, 1936, vol. XXIV, n°. 1, pags. 20-51, est. I-VII.
[In Portuguese, with summary in English].

D'OLIVEIRA, Maria de Lourdes. Aspectos actuais do problema dos virus filtraveis. *Revista Agronómica*, Lisboa, 1936, vol. XXIV, n°. 1, pags. 52-63. Referencias bibliograficas, pags. 62-63.

DRECHSLER, Charles. A new species of Stylopage preying on nematodes. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 3, pp. 241-246, fig. 1. Literature cited, pp. 245-246.
[*Styl. leichypha* n. sp. capturing and consuming nematodes (*Rhabditis, Cephalobus, Acrobeles*) near Sanford, Florida. Latin and English diagnoses are appended].

ECKSTEIN, Karl. Holzzerstörende Bockkäferlarven. *Ergates faber* L., der Mulenbock, *Leptura rubra* L., der Rothalsbock und *Hylotrupes bajulus* L., der Hausbock. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 2, S. 281-293, Abb. 1-10. Literatur, S. 291-293.

EDWARDS, E. T. Root and basal stalk rot of maize. Burning of stalks essential for control. *The Agricultural Gazette of New South Wales*, Sydney, 1936, Vol. XLVII, Pt. 5, pp. 259-261, figs. 1-2.
[*Gibberella saubinetii*].

FINDLAY, D. H., and SYKES, E. T. Destruction of potato haulm to prevent blight infection of the tubers. *The Journal of the Ministry of Agriculture*, London, 1936, Vol. XLIII, No. 5, pp. 457-459.
[*Phytophthora infestans*].

FIDLER, J. Havelock. Some notes on the biology and economics of some British chafers. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 409-427, figs. 1-2. References, pp. 426-427.
[*Amphimallus solstitialis*, *Serica brunnea*, *Melolontha melolontha*].

GEORGI, C. D. V., GREIG, J. L., and TEIK, Gunn Lay. Varietal and manurial trials with Derris. *The Malayan Agricultural Journal*, Kuala Lumpur, 1936, Vol. XXIV, No. 6, pp. 268-281. References, p. 281.

GIGANTE, R[oberto]. Una nuova virosi della rosa in Italia. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1936, anno XVI, n. ser., n. 2, pp. 76-94, figg. 1-14, tav. II-III. Bibliografia, p. 93.

GIGANTE, R[oberto]. Il mosaico del sedano. *Bollettino della R Stazione di Patologia Vegetale*, Roma, 1936, anno XVI, n. ser., n. 2, pp. 99-114, figg. 1-11, tav. IV. Bibliografia, p 114.

GOIDÀNICH, G[abriele]. Sulla defogliazione del pioppo. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 35, p. 291, figg 1-4.
[The ' defogliazione primaverile ' (spring fall of leaves) of the poplar, which the Author proposes to call by the more appropriate name of ' disseccamento apicale dei germogli ' (die-back of tips of poplar buds) is caused by a fungus probably belonging to the genus *Phoma*].

GOIDÀNICH, Gabriele. La " moría dell'olmo " (*Graphium ulmi*) Con prefazione di L. Petri. Roma, Ramo Editoriale degli Agricoltori, [1936], 134 pp., 44 figg. Bibliografia, pp. 129-134.
[The principal object of the present well documentated, illustrated and printed work, is to study the behaviour of *Graphium ulmi*, the spread of the disease produced by it and the damage caused, in Italy.
The large amount of matter has been divided into four principal parts, the first treating the host plant, the second the parasite, the third the disease, the fourth the means of control.
In the appendix is given a description of certain diseases of the elm which are fairly widespread (almost everywhere abroad, little in Italy) and injurious and which should be known so that they are not confused with elm disease].

GOIDÀNICH, Gabriele. Ricerche sulle " Phytophthorae " del pomodoro. I. La " Phytophthora parasitica " Dast. sul pomodoro. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1936, anno XVI, n. ser., n. 2, pp. 115-138, figg. 1-14, tav. V.

Gomez-Menor, Juan. Hongos que ocasionan daños a las plantas "Flor de Sol". *Revista de Agricultura y Comercio*, Ciudad Trujillo, República Dominicana, 1936, vol. XXVII, núm. 80, pág. 2415.
[*Plasmopara halstedii, Erysiphe cichoracearum* and *Phragmidium* sp. on *Helianthus annuus*].

Goodey, T. Some applied biological aspects of problems relating to plant-parasitic nematodes. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 203-230. References, pp. 228-230.

Greeves, T. N., and **Muskett**, A. E. A temperature study of Pythium attack on swede seedlings. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 264-270, pl. IX. References, p. 270.

Hargreaves, H. Variegated coffee bug (*Antestia* spp.) in Uganda. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1926, Vol. I, No. 6, pp. 448-451.

Harris, W. Victor. Notes on two injurious Psyllids and their control *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1930, Vol I, No 6, pp. 498-500, figs. 1-4.
[*Spanioza erythreae* on *Citrus*, *Phytolyma lata* on *Chlorophora excelsa*

Heller, R. M. Ein neuen schadlicher Rüsselkäfer aus der Frucht von *Phoebe elongata* aus Costa Rica (*Coleoptera: Curculionidae*). *Arbeiten uber morphologische und taxonomische Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 2, S. 140-142, Fig. 1 3
[*Cryptosternum nevermanni* n. gen and n. sp.]

Holz, W. Zur Farbung des Myzels von Fusicladium dendriticum in Apfelblattern. *Zentralblatt fur Bakteriologie, Parasitenkunde und Infektionskrankheiten*, II. Abteilung, Jena, 1936, 94. Bd, Nr. 9/13, S. 195. Literaturverzeichnis

Hubault, Et. Extension en France de *Dreyfusia Nusslini* Börner (*Hemipt Chermesidae*). *D. Nusslini* et *D. piceae*, exemple de séparation d'espèces *Comptes rendus des séances de la Société de Biologie et de ses filiales et associées*, Paris, 1936, tome CXXII, n° 24, p. 1002-1094

Institut international d'Agriculture - International Institute of Agriculture L'enseignement agricole dans le monde. — Agricultural education in the world. Rome, 1936, vol II Europe, 2ème partie, VII, 466 p.
[See also this *Bulletin*, 1936, No 3, p. 65. The present volume, published in French and English, is devoted to the following countries: — Hungary, Iceland, Latvia, Lithuania, Luxembourg, Norway, the Netherlands, Poland, Portugal, Rumania, Sweden, Switzerland, Czechoslovakia, Turkey, Soviet Russia and Yugoslavia. Information will also be found on education in Plant Pathology and Agricultural Entomology].

Institut international d'Agriculture. Annuaire international de législation agricole. XXVème année, 1935. Rome, 1936, LXXVII, 925 p.
[As usual, the VIIth part of this Annual is devoted to legislative measures for the protection of plants in the various countries]

Iwadare, Satoru. On the geographical distribution of the black rot of rice-grains and the relation of atmospheric temperature to the outbreak of the disease. *Hokkaido Agricultural Experiment Station. Report No. 36*, Kotoni, Sapporo, Japan, 1936, pp. 1 52, *1-2*, 5 figs., 1 graph, 1 map. [Bibliography], p. 52.
[In Japanese, with title and summary in French. — *Pseudomonas itoana*].

Jack, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 43. June, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 8, p. 584.
[*Nomadacris septemfasciata*].

Jary, S. G. Further experiments on the control of the hop red spider mite, *Tetranychus telarius* L. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 606-611. References, p. 611.

Jepson, W. F. The development of biological control of insect pests, with special reference to some current experiments. *Revue Agricole de l'Ile Maurice*, Maurice, 1936, nº 85, p. 29-34.

Johnson, C. G. The biology of *Leptobyrsa rhododendri* Horvath (Hemiptera, Tingitidae), the rhododendron lacebug. I. Introduction, bionomics and life history. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 342-368, figs. 1-4, pls. XIII-XV. References, pp. 365-368

Johnson, H W, and Edgerton, C. W. A heart rot of Magnolia caused by Fomes geotropus. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 3, pp. 292-295, fig 1.
[On *Magnolia grandiflora*].

Kalshoven, L. G. E. Insecten in versche en in opgeschuurde tengkawang pitten. *Tectona*, Buitenzorg 1936, deel XXIX, afl. 1, blz 44-52.
[In Dutch, with title and summary also in English — 'Insect damage in newly gathered and in stored illipe nuts (*Shorea* and *Isoptera* spp, fam. *Dipterocarpaceae*)'].

King, C. B. Redman. A suitable spraying machine for estate use. *The Tea Quarterly*, St. Coombs, Talawakelle, 1936, Vol. IX, Pt II, pp. 67-68, 2 figs.

Klein, H. Z. Citrus mealy bugs and ants on grapefruits. *Hadar*, Tel-Aviv—Jaffa, Palestine, 1936, Vol. IX, No. 2, pp. 42-43, figs. 1-4. Literature, p. 43.
[*Pseudococcus citri*, *Cremastogaster* (*Acrocoelia*) *jehovae*].

Klemm, M. Der gegenwärtige Stand der Frage über die Schädlichkeit des Apfelblütenstechers (Anthonomus pomorum L.). *Zeitschrift fur angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 2, S 223-264, Abb. 1-31 Schriftenverzeichnis, S. 262-263.

Knechtel, Wilhelm K., şi Manolache, Constantin I. Observaţiuni biologice asupra gândacului ovăzului Lema melanopus L. în România. Extras din *Analele Institutului de Cercetări Agronomice al României*, Bucureşti, 1936, anul VI (1935), vol. VII, 25 p., 13 fig., 4 diagr. Literatura, p. 23-25.
[In Rumanian, with summary in German].

Krishna, S., and Ghose, T. P. Occurrence of *Derris elliptica* in India. *Current Science*, Bangalore, 1936, Vol. IV, No. 12, pp. 857-859

Kunike, Georg. Beiträge zur Lebensweise und Bekämpfung des Kornkafers, Calandra granaria L. (Curculionidae). *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 2, S. 303-326, Abb 1-16.

Lacey, Margaret S. Studies in bacteriosis. XXII. I. The isolation of a *Bacterium* associated with " fasciation " of sweet peas, " cauliflower " strawberry plants and " leafy gall " of various plants. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 302-310, pl. X-XI. References, p. 310.

Lacy, R. C. Some more unrecorded host-plants of *Loranthus longiflorus*, Desr. *Current Science*, Bangalore, 1936, Vol. IV, No. 12, pp. 875-876, fig. 1.

Langenbuch, R. Bericht des Kartoffelkäfer - Abwehrdienstes, Heidelberg. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 9, S. 85-87, Abb. 1-2.
[*Leptinotarsa decemlineata*].

Leib, E. Das erste Jahr des Grossbekämpfungsaktion gegen die Rübenblattwanze in Sachsen. *Die kranke Pflanze*, Dresden 1936, 13. Jahrg., Heft Nr. 9, S. 158-162, Abb. 1-3.
[*Piesma quadrata*].

Lizer y Trelles, Carlos A. Algunas cochinillas nuevas para la fauna de la República Argentina. *Physis*, Buenos Aires, 1936, tomo XII, nº. 42, págs 113 a 116.
[*Aspidiotus cyanophylli, A. ostreaeformis, Chrysomphalus scutiformis, Chrys. personatus, Hemichionaspis aspidistrae, H. minor, Pulvinaria floccifera, Protopulvinaria convexa, Alichtensia attenuata, Orthezia praelonga, Icerya scrottkyi, Neocoelostoma xerophila*].

Loewel, E. L. Die Apfelblüte als Spritztermin. *Die Gartenbauwissenschaft*, Berlin 1936, 10. Bd., 2. Heft, S. 232-246, Abb. 1-4. Literaturverzeichnis, S. 246.
[*Fusicladium dendriticum*].

Malenotti, Ettore. Quarto anno di osservazioni e di prove sui nemici del melo. *L'Italia Agricola*, Roma, 1936, anno 73, n. 8, pp. 591-607, figg. 1-13
[*Cydia pomonella*].

Mandelson, L. F. Experiments with vapours for the control of blue mould of tobacco. *Queensland Agricultural Journal*, Brisbane, 1936, Vol. XLV, Pt. 6, pp. 534-540, pls. 199-201.
[*Peronospora tabacina*].

McDonald, J. A revised list of plant diseases in Kenya Colony. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda, and Zanzibar*, Nairobi, 1936, Vol. I, No. 6, pp. 463-468. References, p. 463.

Menozzi, C[arlo]. Nota preliminare dei rapporti tra parassiti dannosi alla bietola da zucchero e altre piante. *L'Industria Saccarifera Italiana*, Genova, 1936, anno XXIX, n. 8, pp. 378-382.
[*Conorrhynchus mendicus, Cassida vittata, C. nobilis, Lixus junci, Chaetocnema tibialis*].

Monte, Oscar. Uma invasão de " Mormidea poecila Dallas " nos arrozais do Sul de Minas. *Boletim de Agricultura, Zootechnia e Veterinaria*, Bello Horizonte, 1936, anno IX, num. 3, pags. 163-166, 2 figs.

Montgomery, H. B. S. A study of *Fomes fraxineus* and its effects on ashwood. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 465-486, figs. 1-5, pl. XX. References, p. 486.

Morwood, R. B. Paspalum ergot. *Queensland Agricultural Journal*, Brisbane, 1936, Vol. XLV, Pt. 2, pp. 146-147, pl. 45.
[*Claviceps paspali*].

Mungomery, R.W. Entomology in Hawaii. *Queensland Agricultural Journal*, Brisbane, 1935, Vol. XLIV, Pt. 6, pp. 726-732.

PARKIN, E. A. A study of the food relations of the *Lyctus* powder-post beetles. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 369-400, figs. 1-4, pl. XVI. References, pp. 399-400.

PETHERBRIDGE, F. R., and **MELLOR**, J. E. M. Observations on the life history and control of the cabbage aphis, ***Brevicoryne brassicae*** L. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 329-341, pl. XII. References, p. 341.

PETHERBRIDGE, F. R., and **THOMAS**, I. Damage to wheat by *Helophorus nubilus* F. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 640-648, figs. 1-3, pl. XXIX. References, p. 648.

PETHERBRIDGE, F. R., and **THOMAS**, I. The common rustic moth, *Apamea* (*Hadena*) *secalis* L., attacking winter cereals. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 649-652. References, p. 652.

RAY, W. W. Pathogenicity and cultural experiments with Caliciopsis pinea. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 3, pp. 201-208, figs. 1-6. Literature cited, p. 208.
[On *Pinus strobus*].

RIPERT, J., et **GAUDIN**, O. Mesure de la toxicité de la pyréthrine I et de la pyréthrine II. *Annales des Falsifications et des Fraudes*, Paris, 1936, XXIX^{e} année, nº 327, p 132-141, fig. 1-2, 2 diagr.

ROBERTS, Florence M. The determination of physiologic forms of *Puccinia triticina* Erikss. in England and Wales. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 271-301. References, pp. 300-301.

ROEBUCK, A. Fluctuations of infect populations: field observations. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 441-444.

SAKSENA, R. K. Recherches physiologiques et cytologiques sur quelques espèces du genre *Pythium*. *Revue générale de Botanique*, Paris, 1936, tome XLVIII, nº 567, p. 156-188, fig. 1-4, pl.XI-XVI-bis; nº 568, p. 214-252, fig. 5-7; nº 569, p. 273-313. Bibliographie, p. 307-313.
[*P. deliense*, *P. de Baryanum*, *P. mamillatum*, *P. indigoferae*].

SASAKI, Mitsuo. On the anthracnose of adzuki bean in Hokkaido *Hokkaido Agricultural Experiment Station. Report No. 36*, Kotoni, Sapporo, Japan, 1936, pp. 53-77, 3-4. [Bibliography], p. 57.
[In Japanese, with title and summary in English. — *Colletotrichum phaseolorum* on *Phaseolus radiatus* var. *aureus*].

SCHILBERSZKY, Károly. Adatok a Pseudomonas tumefaciens élettani ismeretéhez. *Kisérletügyi Közlemények*, Budapest 1935, XXXVIII. kötet, 5-6. füzet, 207-216 o., 1. ábra.
[In Hungarian, with titles and summaries also in German and French:— ' Beiträge zur Biologie von Pseudomonas tumefaciens '. — ' Contributions à la biologie de Pseudomonas tumefaciens '].

SCHMIDT, Martin.Die Schädlinge des Obst-und Weinbaus. Vierte Auflage des Freiherr von Schilling'schen Werkes in völlig neuer Bearbeitung. Frankfurt (Oder) und Berlin, Gartenbauverlag Trowitzsch & Sohn, [1936], 85 S.mit 45 Farbenbildern auf zwei Tafeln und 24 Fotos.
[This brochure constitues the fourth edition of the well-known publication of von Schilling on the most widespread pests of fruit trees and vines. Dr. M.

Schmidt has retained the coloured plates painted by the first author, and added 24 photos. The explanatory text however has been completely rewritten. Dr. Schmidt intends to enable the reader, by means of an analytic key, to determine the different pests and to give him all useful information on their life history.
The methods and means of control are treated together in a special chapter].

SÉGUY, G. Un nouveau Muscide nuisible à l'orge au Maroc. Liste des Diptères vivant sur les Hordeum. *Bulletin de la Société des Sciences Naturelles du Maroc*, Rabat, 1936, tome XVI, 1er trimestre, p. 3-5, fig. 1.
[*Hylemyia hordeacea* n. sp. Description in French. A list follows of 18 Diptera the larvae of which develop on *Hordeum* spp].

SHAFIK, M., and HINDI, A. H. Studies on pyrethrum (*Chrysanthemum cinerariaefolium* Trev.) in Egypt. *Ministry of Agriculture, Egypt Technical and Scientific Service. Entomological Section. Bulletin No 166*, Cairo, 1936, 24 pp., 6 pls., 1 map. Literature, pp. 23-24.

SHEFFIELD, F. M. L. The susceptibility of the plant cell to virus disease *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 498-505, fig 1. References, p. 505.

SHEFFIELD, F M. L. The role of plasmodesms in the translocation of virus *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 506-508, pl. XXI References, p. 508.

SIBILIA, Cesare Ricerche sulle ruggini dei cereali. V. Ulteriori ricerche sulla specializzazione della " Puccinia triticina " Erikss. in Italia *Bollettino della R Stazione di Patologia Vegetale*, Roma, 1936, anno XVI, n ser , n. 2, pp 69-75, 1 carta. Lavori citati, p 75

SIBILIA, Cesare. Ricerche sulle ruggini dei cereali VI La specializzazione della " Puccinia graminis tritici '. Erikss. et Henn. in Italia. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1936, anno XVI, n. ser , n. 2, pp. 95-98. Lavori citati p. 98.

SIBILIA, Cesare. La diffusione dei " Berberis" in Italia in rapporto alla *Puccinia graminis* Pers. *Bollettino della R. Stazione di Patologia Vegetale*, Roma, 1936. anno XVI, n. ser., n. 2, pp. 139-145. Lavori consultati, p. 145.

SIMMONDS, Hubert W Fruit fly investigations, 1935. *Department of Agriculture, Fiji. Bulletin No. 19*, Suva, 1936, 18 pp., 4 pls. References, p. 18.
[*Chaetodacus passiflorae*, *Ch. xanthodes* and *Chaetodacus* sp. closely related to *Ch. distinctus*].

SIMMONDS, J. H. Diseases of the tomato *Queesland Agricultural Journal*, Brisbane, 1936, Vol XLV, Pt. I, pp. 5-11, pls 1-2.
[*Phytophthora infestans*, *Septoria lycopersici*, *Alternaria solani*, *Bacterium solanacearum*, *Fusarium lycopersici*, *Verticillium albo-atrum*, virus diseases].

SMITH, M. R. Distribution of the Argentine ant in the United States and suggestions for its control or eradication. *United States Department of Agriculture. Circular No. 387*, Washington, D. C., 1936, 39 pp., 24 figs. Literature cited, pp. 38-39.
[*Iridomyrmex humilis*]

SOKOLOV, N. P. Der Einfluss von Temperatur und farbiger Beleuchtung auf Entwicklung und morphologische Eigenschaften der Blattlaus Lipaphis eresimi Kalt. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 2, S. 294-302. Literatur, S. 301-302.

SPEYER, W. Die Empfindlichkeit von Insekten und Insektenlarven gegen Teerölpräparate. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 9, S. 89-92. Schriftenverzeichnis, S. 92.

STAPP, C., und HÄHNE, H. Zur Frage der Resistenz von Buschbohnensorten gegen den Erreger der Fettfleckenkrankheit Pseudomonas medicaginis var. phaseolicola Burkh. *Angewandte Botanik*, Berlin 1936, Bd. XVIII, Heft 3, S. 249-262. Literatur, S. 262.

STEINER, Paul. Beiträge zur Kenntnis der Schädlingsfauna Kleinasiens III. *Laphygma exigua* Hb., ein Grosschädling der Zuckerrübe in Anatolien. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 2, S. 177-222, Abb. 1-11. Literatur, S. 221-222.

STOREY, H. H. Virus diseases of East African plants. V. – Streak disease of maize. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1936. Vol. I, No. 6, pp. 471-475, figs. 1-4. References, p. 475.

SZELÉNYI, Gusztáv. Adatok a máktokbarkó (Ceutorrhynchus macula-alba Hbst.) bionomiájához és ökologiájához. *Kisérletügyi Közlemények*, Budapest 1935, XXXVIII. kötet, 5-6. füzet, 217-224 o., 1-2. ábra. Irodalom, 223 o.
[In Hungarian, with titles and summaries also in German and English:— ' Beiträge zur Kenntnis der Bionomie und Ökologie des Mohnrüsslers (Ceutorrhynchus macula-alba Hbst.) '. — ' Some observations from life history of the poppy-weevil (Ceutorrhynchus macula-alba Hbst.) '].

TATTERSFIELD, F. Fish-poison plants as insecticides A review of recent work. *The Empire Journal of Experimental Agriculture*, Oxford, 1936, Vol. IV, No. 14, pp. 136-144. References, pp. 143-144.

THOMAS, I. On the occurrence in England of the pear fruit saw-fly, *Hoplocampa brevis* Klug. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 3, pp. 633-639, figs. 1-3, pl. XXVIII. References, pp. 638-639.

THOMPSON, A. *Ustulina zonata* on the oil palm. *The Malayan Agricultural Journal*, Kuala Lumpur, 1936, Vol. XXIV, No. 5, pp. 222-226, 1 pl. References, p. 226.

TOMASZEWSKI, Walter, und FISCHER, Walter. Versuche mit Obstbaumkarbolineen und Baumspritzmitteln. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 9, S. 87-89, 1 Abb. Literatur, S. 89.
[See also this *Bulletin*, 1936, No. 9, p. 214].

TROUVELOT, Bernard. Remarques sur l'écologie du doryphore en 1935 dans le Massif Central et le Centre de la France. *Revue de Zoologie agricole et appliquée*, Bordeau, 1936, 35e année, n° 3, p. 33-37.
[*Leptinotarsa decemlineata*].

ULLYETT, G. C. Host density and the success of entomophagous parasites. *Nature*, London, 1936, Vol. 137, No. 3470, pp. 742-743, fig. 1.
[*Microplectron fuscipennis*, a parasite of *Diprion polytomum*].

UPPAL, B. N., PATEL, M. K., and KAMAT, M. N. Pea powdery mildew in Bombay. *Department of Agriculture, Bombay. Bulletin No. 177 of 1935*. First edition. Bombay, 1935, 12 pp., 5 pls.
[*Erysiphe polygoni*].

Urquijo Landaluze, Pedro. Hacia la solución del problema del castaño. La Coruña, Papelería e Imprenta « Lombardero », 1936,38 págs., 4 figs., 3 mapas. Bibliografía, [pág.] 27.
[Treats ink disease of the chestnut (*Phytophthora cambivora*) and the means which have been employed to control this disease The treatment proposed by the Author is to form, with an insoluble copper salt (carbonate) in powder form, a species of barrier round the trunk underground and the upper part of the roots which prevent the penetration of the mycelium of the parasite to the living parts of the plant].

Veitch, Robert Potato tuber moth and its control. *Queensland Agricultural Journal*, Brisbane, 1935, Vol. XLIV, Pt. 6, pp. 694-696, pl. 249.
[*Phthorimaea operculella*]

Veitch, Robert. Red shouldered leaf beetle. *Queensland Agricultural Journal*, Brisbane, 1936, Vol. XLV, Pt. 2, pp. 128-130, pl. 36.
[*Monolepta rosea*].

Vinas, I, et Save, I Méthode rapide de dosage du fluosilicate de baryum dans les poudres insecticides. *Annales des Falsifications et des Fraudes*, Paris, 1936, XXIXe année, n° 327, p. 152-154

Vinson, Jean. Les Coccinelles des Iles Mascareignes. *Revue Agricole de l'Ile Maurice*, Maurice, 1936,n° 85, p. 19-28, 1 pl Bibliographie, p. 27-28.
[*Dysis bisquatuorguttata, Chilomenes lunata, Exochomus laevisculus, Platynaspis kollari* var. *capicola, Hyperaspis hottentota, Rodolia chermesina, Scymnus constrictus, S oblongosignatus, Scymnus* sp, *Scymnhova 4-guttata* (?), *Pullus caeruleipennis, Scymnomorphus* sp., *Lindorus lophanthae, Sticholotis madagassa*].

Vrijdagh, J. M. Contribution à l'étude de la maladie des chancres des tiges du cotonnier causée par *Helopeltis bergrothi* Reut *Bulletin Agricole du Congo Belge*, Bruxelles, 1936, vol. XXVII, n° 1, p. 3-37, fig. 1-10. Bibliographie, p. 37.

Weddell, J. A. A recent army worm outbreak. *Queensland Agricultural Journal*, Brisbane, 1936, Vol. XLV, Pt. 5, pp. 449-460, pls. 166-171.
[*Spodoptera exempta*].

Wenz, Hans. Spätfrostschäden an Aprikosenblättern. *Die Gartenbauwissenschaft*, Berlin 1936, 10. Bd, 2. Heft, S. 247-255, Abb. 1-3. Literaturverzeichnis, S. 255.

Western, J. H. The biology of oat smuts IV The invasion of some susceptible and resistant oat varieties, including Markton, by selected biological species of smut (*Ustilago Avenae* (Pers) Jens. and *Ustilago Kolleri* (Wille). *The Annals of Applied Biology*, London, 1936. Vol. XXIII, No. 2, pp. 245-263, fig. 1-6, pls. VII-VIII. References, pp. 261-262.

White, C. T. Weeds of Queensland. *Queensland Agricultural Journal*, Brisbane, 1935, Vol. XLIV, Pt. 6, pp. 702-765, pls. 252-253.
[*Centaurea repens, Melilotus indica*].

Winkelmann, A., und Holz, W. Beiträge zur Biologie und Bekämpfung des Apfelschorfes (Fusicladium dendriticum [Wallr.] Fckl.). II. *Zentralblatt für Bakteriologie, Parasitenkunde und Infectionskrankheiten*, II. Abteilung, Jena 1936, 94. Bd., Nr. 9/13, S. 196-215, Abb, 1-8 Literaturverzeichnis, S. 215.

WOLF, Frederick A. False mildew of red mulberry. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 3, pp. 268-277, figs. 1-3. Literature cited, p. 277.
[A disease of *Morus rubra* caused by *Mycosphaerella arachnoidea* n sp. the conidial form of which is *Cercosporella arachnoidea*. A Latin diagnosis appended].

WOLLENWEBER, H. W., und REINKING, O.A. Die Verbreitung der Fusarien in der Natur. Berlin, R. Friedländer und Sohn, 1935, 80 S., 41 Abb.

WORSLEY, R. R. le G. The insecticidal properties of some East African plants. II. *Mundulea suberosa* Benth. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 2, pp. 311-328, figs. 1-6. Reference, p 328.

ZALESKI, Karol, i DORYWALSKI, Józef. Dwuletnie doświadczenia polowe z zaprawami nad zwalczaniem śnieci cuchnącej u pszenicy ozimej Edel-Epp (z lat 1932/33 i 1933/34). *Roczniki Nauk Rolniczych i Leśnych*, Poznań 1935, tom XXXV, zeszyt 3, str. 444-455. Literatura, str. 453
[In Polish, with title and summary also is English — 'Two years field-experiments in the bunt control (Tilletia tritici) of winter-wheat Edel-Epp by means of different seed-treatments, conducted 1932/33 and 1933/34'].

ZECK, E. H. The cherry aphid (*Myzus cerasi* Fab). *The Agricultural Gazette of New South Wales*, Sydney, 1936, Vol. XLVII, Pt. 5, pp 255-258, 6 figs.

NOTES

Resolutions Adopted by the IInd International Forestry Congress. — The IInd International Forestry Congress, held in Budapest from 10 to 14 September, 1936, adopted, *inter alia*, the following resolutions —

'The Congress recommends, for ascertaining the presence of the two species of cockchafers [*Melolontha melolontha* (*vulgaris*) and *M hippocastani*], the methods of digging trial ditches which allows not only a comparison to be made between the results obtained in the different countries, but also presents the problem in its true light.'

'The Congress, considering the necessity, for the forecasting and the prophylaxy of the pullulation of insect life, of exact bases derived from the constitution of the forest itself, recommends—

'(1) The study, at the place of origin, of all pullulations of noxious insects by professional forestry entomologists, directed by a central organisation, established for the whole country or, according to the importance, for a department. The influence of environment on the movement of the masses of insects should always be studied at the actual place of origin. At the same time, investigations should be made on the way in which pullulation influences the vitality and reproduction of species touching the saturation of the living area. When the saturation of the living area is reached and what are the subsequent reactions on the species? To carry out this work, which should be adequately subsidised by the State, well equipped mobile forestry laboratories should be organised which may be utilised at all times on the place of pullulation. In these laboratories the cause of origin, the development of the pullulation and the factors of the crisis may be studied.'

'(2) To understand the influence of nature, both living and dead, and other factors on the movement of the masses of noxious insects during the calm periods, fixed forestry laboratories should be established. It is advisable to organise the distribution of these fixed laboratories according to the various climatic zones. It is necessary that they should be situated in the centre of the infested territories, in the area of the direct passage of insects and in territories outside the danger zone, always placed directly in private forestry properties. Apart from the study of biotic factors, it is chiefly necessary to concentrate on the influence of abiotic factors on insects and their parasites (climate, weather, environmental climate, microclimate, etc). The mobile and fixed laboratories should organise places for bioclimatic observation adapted to the biological work. The object of the studies is to determine exactly the best types of forestry formations and the methods of cultivation which give the greatest resistance of environment to the principal noxious insects, that is, which create the most unfavorable conditions for their development and existence '

' (3) The establishment of forestry stations in the remaining areas of virgin forests Their duty would be to study the movement of the principal noxious insects of the forest cultivated in areas untouched by man and the knowledge of the factors of these favourable and unfavourable environments '

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

During the month of May, 1936, hoppers were reported in the districts of Luanda, Malange, Benguela, Quanza Sul, and Huila.

In the municipal district of Icolo and Bengo, district of Luanda, 157 hopper bands were destroyed at Onga Zanga, Cabiri, and Cassoneca; at Columbo 577 kilos of larvae were destroyed.

In the same month swarms were observed in the district of Luanda, 14 of which were destroyed, also in the districts of Quanza Norte, Congo, Sazaire, and Huila.

Greece: *Glyphodes* (*Margarodes*) *unionalis* on Olives §

In the district of Agrinion there is an olive grove of 200.000 trees renowned for the size and quality of the fruit. These trees have been treated every year for the last ten years against the olive fly (*Dacus oleae*, Rossi).

In 1936, for the first time, this olive grove has been invaded by *Glyphodes* (*Margarodes*) *unionalis*, Hb. The caterpillar of this parasite was frequently observed where two fruits touched each other; it was seen rarely on isolated fruits.

A great number of moths were caught by means of open traps containing molasses used as a supplement to arsenical sprayings against the olive fly.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. JORGE DE BARROS RODRIGUES QUEIROZ, Director of the Laboratory of Plant Pathology and Agricultural Entomology of Luanda, attached as technical adviser to the Services of Locust Control, transmitted to the Institute by the Government General of the Colony.

§ Communication from the official correspondent of the Institute, Professor C. A. ISAAKIDÈS, Director of the Benaki Phytopathological Institute, Kiphissa, Athens, Greece.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) *

During the month of July, 1936, the swarms were already in the phase of great flights.

In the north of the Colony, in the province of Niassa, two swarms appeared.

In the centre of the Colony a certain movement of locusts was observed, especially in the district of Tete.

In the south, in Inhambane, the swarms were in movement and tended to unite.

In the district of Lourenço Marques the same tendency was observed and in Manhiça a swarm appeared which having entered the territory some days before proceeding from Kruger Park settled on the banks of the Incomati to the north of Moamba.

On the southern frontier, in Catuane, swarms continued to enter from Zululand and others flew back over the border.

In conclusion, the situation in the month of July is better than in the same month of the past year though worse than in last June, which shows that the mortality of hoppers in the months of January, February and March was less than was expected.

Southern Rhodesia: Locust Invasion, 1932-1936 †

Monthly Report No. 45. August, 1936.

There has been a recrudescence of Red Locust (*Nomadacris septemfasciata*, Serv.) activity during the month and swarms have been reported from many districts, namely: — Salisbury, Mazoe, Lomagundi, Umtali, Victoria, Wankie, Hartley, Darwin, Insiza, Gutu, Bulawayo, Ndanga, Bubi, Mrewa, Balalima-Mangwe, Selukwe, Matobo, Gwelo, Mtoko and Melsetter.

The great majority of these swarms have been described as ' large '. On the 28th, a swarm visited Salisbury township and was timed when leaving in a N. N. E. direction. The locusts were then travelling fast and high and occupied approximately one and a half hours in passing over one point. Two swarms took three and two hours respectively to pass over Mtoko on the 16th and 19th, whilst another swarm in the Hartley district on the 19th was estimated to be from fifteen to twenty miles long.

No damage has been reported to the Department.

---

* Communication from Mr JULIO GARDÉ ALFARO CARDOSO, Chief of the Entomological Section, Lourenço Marques, Mozambique, transmitted to the Institute by the ' Repartição Técnica de Agricultura ' of the Colony.

† Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

The number of reports received amounts to approximately two and one half times the number received in the month of August, 1935. It is evident that the present swarm cycle of *N. septemfasciata* cannot be regarded as definitely drawing to a close, and the possibility of a fairly extensive outbreak of hoppers during the coming rains cannot be ignored.

Turkey: Some Insects Injurious to Cultivated Plants *

Locusts. — The Moroccan locust (*Dociostaurus maroccanus*) and the Italian locust (*Calliptamus italicus*) have long been pests to agriculture in Turkey. As a result of effective control methods, the Moroccan locust has, since 1934, entered the solitary phase in some regions well known as being infested. The adults no longer arrive from the Syrian frontier.

Diaspis (*Aulacaspis*) *pentagona*. — The Mulberry Scale is frequent in the country where it especially attacks the mulberry, peach, walnut tree, etc. The Ministry of Agriculture has taken strong measures in the silk growing regions in order to lessen the damage caused. Very satisfactory results have been obtained by the introduction of *Prospaltella berlesei*.

Carpocapsa (*Cydia*) *pomonella*. — The Codling Moth is a redoutable pest in apple cultivation in Asia Minor. The Ministry of Agriculture has concentrated control measures in four apple-growing centres: Bolu (on the Black Sea), Amasya, Malatya and Nigde. Lead arsenate is used as an insecticide.

Hyponomeuta malinellus. — Against the Apple Ermine Moth, which is common in Asia Minor where it attacks chiefly the plum and apple trees, arsenical sprays are adopted.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Circular of 23 August, 1936, and in order to prevent the excessive multiplication of blackbirds, observed in all parts of the country, persons having a shooting-license are authorized, during the period from 1 September to 30 November, to shoot blackbirds. Capture is forbidden. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Oktober 1936, 16. Jahrg., Nr. 10, S. 103).

⁂ By Notification of 1 September, 1936, the list of horticultural and botanical establishments, nurseries and gardens, which are subject to regular control as provided for by the International Convention of Berne on grape phylloxera [*Phylloxera vastatrix*] has been enlarged. (*Ibid.*).

Germany (Prussia). — By Decree of 22 June, 1936, amended by that of 26 August, 1936, the Douglas firs (*Pseudotsuga taxifolia*) will be subject to phytosanitary control in the province of Slesvig-Holstein.

---

* Communication from the official correspondent of the Institute, Mr Sureya, State Councillor, Ankara, Turkey.

Any person cultivating Douglas firs for a commercial purpose is obliged to make a declaration to the Plant Protection Service at Kiel. This declaration must be made before the end of every year, and for the first time before 15 July, 1936.

The sale of Douglas firs is only allowed through an official certificate testifying that the plants have been examined and that they are recognized as healthy.

Any plant that is recognized as being diseased must be destroyed within 14 days.

These regulations are not applicable to one or two-year old Douglas firs, as the nurseries where they have grown will be under the permanent control of the Plant Protection Service and also as these nurseries are guaranteed as being free from the leaf-cast disease [*Rhabdocline pseudotsugae*]. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Oktober 1936, Bd. VIII, Nr. 7, S. 160-161).

Argentine Republic. — By Decree No. 84.433 of 15 June, 1936, and up to 30 October of the same year, exemption is accorded for the transport of non-disinfected cotton seed for industrial purposes coming from the zone declared to be infested by pink bollworm (*Platyedra gossypiella*). (*Boletín Oficial de la República Argentina*, Buenos Aires, 20 de agosto de 1936, año XLIV, núm. 12.639, pág. 851).

⁂ The Decree No 84.823 of 20 June, 1936 prohibits the delivery from any part of the country to the provinces of Mendoza, San Juan, San Luis and the territories ef Neuquén, Río Negro, and Chubut, of fruits which are susceptible to the attacks of fruit flies (Trypetidae), including in this prohibition, damsons, peaches, custard apples, guavas, persimmons, citrus fruits, pears, mangoes, grapes and plums.

Exempted from the preceding disposition are the consignments of fruit from notoriously uninfested regions of provinces or territories, which may be decided by the Ministry of Agriculture through the 'Dirección de Sanidad Vegetal', which consignments, to be accepted for delivery by post, transport companies, etc. must be accompanied by a sanitary certificate of a special kind, in which the competent authority has stated this fact.

The Governors of the Provinces are requested to give their collaboration in order to effect the realization of this Decree. (*Ibid.* 25 de agosto de 1936, núm. 12.643, pág. 1105).

⁂ By Decree No. 86.069 of 14 July; 1936, one hundred thousand 'pesos' have been provided for purchasing live South American locusts [*Schistocerca paranensis*]. (*Ibid.*, 7 de septiembre de 1936, núm. 12.654, pág. 307).

⁂ The Decree No. 87.240 of 30 July, 1936, emphasises the dispositions of the Decree No. 86.069. (*Ibid.*, 18 de septiembre de 1936, núm. 12.664, pág. 883).

Canada. — The Destructive Insect and Pest Act Advisory Board, Department of Agriculture, Ottawa, Canada has published the revised Circular containing the Destructive Insect and Pest Act and Regulations thereunder which deal with the importation of plants and plant products into Canada from other countries. (*The Destructive Insect and Pest Act and Regulations thereunder. Administered by the Department of Agriculture. Acts, Orders and Regulations No. 8* (*3rd Revised edition, 1936*), Ottawa, 1936, 36 pp).

British Possessions. — Under the title 'Summaries of Colonial Rules for Importation of Plants', *Agriculture and Live-stock in India* has published summaries of plant import legislation in force into following countries:— Malta, Cyprus, Gambia, Sierra Leone, Gold Coast, Nigeria, Northern Rhodesia, Southern Rhodesia, Zanzibar, Kenya Colony, Uganda Protectorate, Nyasaland Protectorate, Mauritius, Palestine, Ceylon, Barbados, Jamaica, Antigua, Dominica, St. Kitts and Nevis, Montserrat, Trinidad and Tobago, St. Vincent, St. Lucia, Tonga (Friendly Islands), Gilbert and Ellice Islands Colony, British Solomon Islands. (*Agriculture and Live-stock in India*, Delhi, 1936, Vol. VI, Pt. IV, pp. 548-595).

Estonia. — By Decree of 2 July, 1936, amending the Decree No. 5115 of 20 July, 1931 [see this *Bulletin*, 1932, Nn. 2, pp. 26-27], it is established that products to be utilized in the control of plant diseases and pests, and weeds, which are admitted duty free, will have to be, for the privilege of the franchise, imported in their original packing, exemption being made for 'Meritol' and arsenates of calcium and sodium which will be able to be imported in any kind of packing. (*Deutsches Handels-Archiv*, Berlin, 1. Septemberheft 1936, 90. Jahrg., S. 2706).

France. — By Ministerial Decree of 8 July, 1936, and for the purpose of improving on Article 8 of the Law of December, 1934, relative to the replacement of vines infested by grape phylloxera [*Phylloxera vastatrix*], vine growers should send an application with a plan of the plots attacked to the prefecture of the department where the vines to be replaced are situated before 1 June of each year.

The prefects will determine the infestation by grape phylloxera by means of a special Commission. Each department may constitute several Commissions.

The applications and reports drawn up by the Commissions will be forwarded by the prefects to the Ministry of Agriculture before 1 October of each year.

Before taking a decision the Ministry of Agriculture will submit these documents, for advice, to the Commission established by Ministerial Decree of 23 March, 1935 [see this *Bulletin*, 1935, No. 7, p. 159]. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 15 juillet 1936, année 1936, n. 14, p. 309-310).

⁂ A Notification of the Ministry of Agriculture to importers of fresh fruits originating in the island of Puerto Rico, recalls that the territory of Puerto Rico having been recognized as free from the San José scale (*Aspidiotus perniciosus*], the consignments of fresh fruits originating in this island may be imported through any customs-house on the French maritime frontier, provided that they have been sent direct and that they are accompanied by a certificate of origin according to the form published in the *Journal Officiel* of 2 June, 1932.

If the said consignments have made contact in an United States port, the territory of which has been recognized as infected with the San José scale, they can only be introduced into France under the following conditions:—

(1) To be imported through one of the following ports: Dunkerque, Bordeaux, Marseille.

(2) To be accompanied by a certificate according to the form published in the *Journal Officiel* of 4 May, 1932, delivered by the phytosanitary inspector of the port of landing in the United States.

(3) To have been sent directly from the American port to the French port.

(4) To be recognized by the phytosanitary inspectors of the French port as being free from all disease or dangerous parasites and especially from the San José scale. (*Ibid.*, 1ᵉʳ septembre 1936, nᵒˢ 16-17, p. 380).

⁂ A Notification of the Ministry of Agriculture to exporters of potatoes indicates the conditions of admission to Morocco of potatoes originating and coming from France, according to the terms of the Vizirial Decree of 1 August 1936 [see this *Bulletin*, 1936, No. 10, p. 227]. (*Journal officiel de la République française*, Paris, 18 octobre 1936, LXVIIIᵉ année, nᵒ 245, p. 10916-10917).

Italy. — By Ministerial Decree of 27 August, 1936, the commune of Monteroni d'Arbia, province of Sienna, has been declared infested with grape phylloxera [*Phylloxera vastatrix*]. (Ministero dell'Agricoltura e delle Foreste. *Bollettino Ufficiale*, Roma, 1ᵒ ottobre 1936, anno VIII, n. 19, p. 896).

⁂ By Ministerial Decree of 25 September, 1936, the commune of Chiusano di San Domenico, in the province of Avellino, has been declared infested with grape phylloxera. (*Ibid.*, 16 ottobre 1936, n. 20, p. 921).

Latvia. — The Decree No. 30 of 24 March, 1936 adds two preparations 'Billwärder' and 'Nosprasit' to the list of products used in the control of plant diseases and pests, which are admitted duty free [see this *Bulletin*, 1932, No. 9, p. 151]. (*Deutsches Handels-Archiv*, Berlin, 1. Septemberheft 1936, 90. Jahrg., S. 2765).

Morocco (French Zone). — A Decree of 18 July, 1936 authorises the destruction of wild boars causing great damage to crops situated in the territory of the bureau of native affairs of Azrou. (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 24 juillet 1936, XXVᵉ année, nᵒ 1239, p. 926).

⁂ By Decree of the Director of Economic Affairs, dated 3 September, 1936, and in conformity with the dispositions of the Vizirial Decree of 1 August, 1936 (12 joumada I 1355) relative to the application of sanitary measures to potatoes, tomatoes and egg plants on their entry into the French Zone of the Sherifian Empire [see this *Bulletin*, 1936, No., 10 p. 227], the list of countries infested by the Colorado beetle [*Leptinotarsa decemlineata*] is as follows:— Belgium, Canada, the United States of America, Brazil, Mexico, France.

The list of countries adjoining the infested countries where the Colorado beetle has been reported at least 50 kilometres from their frontiers is as follows:— the Netherlands. (*Ibid.*, 11 septembre 1936, n° 1246, p. 1132).

⁂ A Decree of the Director of Economic Affairs, dated 10 September, 1936, establishes, in Article 1, that the importation or transit of products or objects enumerated in Article 5 of the Dahir of 20 September, 1927 [see *International Review of Agriculture*, 1928, No. 6, p. 571], may only take place by the ports of Casablanca or Port-Lyautey or by the frontier-post of Oujda.

According to the provisions of Article 1 of the present Decree:—

Potatoes may be inspected at Rabat, Mazagan, Safi and Mogador when the weight of the consignments is equal or superior to 20 quintals and at Agadir for consignments weighing a minimum of 100 quintals.

Used sacks may be inspected at Rabat, Mazagan, Safi and Mogador when the weight of the consignments is equal to or more than 20 quintals and at Martimprey-du-Kiss whatever the weight of the consignments.

Whenever fumigation or disinfection is prescribed by the officials charged with sanitary inspection in the ports or frontier-post enumerated above, the consignments are, at the choice of the consignee, returned or forwarded either to Casablanca or Port-Lyautey by sea, or to Oujda via Algerian territory.

Sanitary inspection cannot take place in the ports or frontier-post mentioned above except under the express condition that the importers interested are responsible for the costs of transport of the plant protection inspector, charged with this operation, from his place of residence to the port or frontier-post, also the indemnities for displacement calculated according to the official tariffs now in force.

These costs and indemnities are fixed at a round sum of 75 francs for Martimprey-du-Kiss. At the same time, these are not due from the importer if inspection is carried out on the occasion of the passage of the plant protection inspector.

The dispositions of the Decrees of the Director General of Agriculture of 27 March, 1931 [see this *Bulletin*, 1931, No. 4, p. 61], of 31 March, 1933 [*Bulletin*, 1933, No. 6, p. 131] and of 19 March, 1936 [*Bulletin*, 1936, No. 8, pp. 179-180], are revoked. (*Ibid.*, 18 septembre 1936, n° 1247, p. 1150).

⁂ By Vizirial Decree of 19 September, 1936 (3 rejeb 1355) the Administrative Commission of Syndical Associations for the control of plant parasites, instituted by Article 21 of the Dahir of 17 December, 1935 (20 ramadan 1354) [see this *Bulletin*, 1936, No. 5, pp. 107-108] is composed as follows:—

The Director of Economic Affairs, President,
The Director General of Finance, or his representative,
The Director of Political Affairs, or his representative,
The Chief of the Service of Agriculture and Colonisation,
A representative of the Secretary General of the Protectorate,
The Inspector General for Plant Protection,
An Inspector for Plant Protection,

Two farmers and two native planters or arboriculturists, selected by the Delegate at the Residence, on the proposal of the Director of Economic Affairs.

The Vizirial Decree of 17 December, 1935 (20 ramadan 1354) [see this *Bulletin*, 1936, No. 5, p. 108] relating to the same purpose is repealed. (*Ibid.*, 16 octobre 1936, n° 1251, p. 1242).

Peru. — By Decree of 22 June, 1936, orders are given for the control of the fruit fly (*Anastrepha* sp.) in the province of Tacna, in accordance with the scheme established by the ' Dirección ' of Agriculture and Colonisation. (*La Vida Agrícola*, Lima (Perú), agosto 1° de 1936, vol. XIII, no. 153, pág. 675).

Czechoslovakia. — By Ordinance of the customs authorities of Prague, dated 23 November, 1935, the control of live plants, fresh fruits, etc., coming from Spain, in order to prevent the introduction of San José scale [*Aspidiotus perniciosus*] will be limited henceforth to the control of samples taken at random. (*Deutsches Handels-Archiv*, Berlin, 1. Septemberheft 1936, 90. Jahrg., S. 2842).

RECENT BIBLIOGRAPHY

ALLINGTON, W B. Sclerotial formation in Rhizoctonia solani as affected by nutritional and other factors. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No 9, pp. 831-844, fig. 1. Literature cited, p. 844.

ANDREWS, F. W The effect of leaf curl disease on the yield of the cotton plant *The Empire Cotton Growing Review*, London, 1934, Vol. XIII, No. 4, pp. 287-298, graph I. Literature cited, p. 293
[A virus disease]

ANSTEAD, Rudolph D Cultural methods of controlling plant diseases *The Madras Agricultural Journal*, Coimbatore, S. India, 1936, Vol. XXIV, No. 8, pp. 292-295.

AVERNA SACCÀ, Rosario Contribuição para o estudo das molestias cryptogamicas da laranjeira. *O Solo*, Piracicaba, Estado de S. Paulo, 1936, anno XXVIII, num. 3-4, pags. 58-60, fig. 1.
[*Nectria cancri* f. *aurantii*].

BALLOU, Charles H. El zompopo. *C N A*, San Pedro de Montes de Oca, San José, Costa Rica, 1936, año I, núm. 6, págs 100 a 102.
[*Atta sexdens*].

BEAUMONT, A. B. A hypothesis to explain brown root-rot of Havana seed tobacco. *Science*, Lancaster, Pa., 1936, New Series, Vol. 84, No. 2173, pp. 182-183.
[It seems that the unoxidized forms of nitrogen resulting from the decomposition of organic matter are indirectly the cause of this disease].

BERGMAN, Herbert F., and WILCOX, Marguerite S. The distribution, cause, and relative importance of cranberry fruit rots in Massachusetts in 1932 and 1933, and their control by spraying. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp 656-664. Literature cited, p. 664.
[*Glomerella*, *Sporonema* and *Diaporthe* on *Vaccinium*].

Bitancourt, A. A., and Jenkins, Anna E. Perfect stage of the sweet orange fruit scab fungus. *Mycologia*, Lancaster, Pa., 1936, Vol. XXVIII, No. 5, pp. 489-492, figs. 1-2. References, p. 49.
[*Elsinoe australis* n. sp., the perfect stage of *Sphaceloma fawcetti viscosa* now called *Sphacel. australis*].

Borzini, Giovanni. Su di un marciume dei frutti di kaki. *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n. 42, p. 349.
[*Botrytis cinerea* on *Diospyros kaki*].

Brandt, Herbert. Ueber die Aenderung des Geschlechtsverhältnisses bei Insekten und ihre Ursachen. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 218-221.

Bredo, H.-J. Note sur la lutte biologique à entreprendre dans les plantations de café infestées par l'Antestia. *Agriculture et Elevage au Congo Belge*, Bruxelles, 1936, X^{e} année, n^{o} 8, p. 118.

Brenchley, Winifred E., and Warington, Katherine. The weed seed population of arable soil. III. The re-establishment of weed species after reduction by fallowing. *The Journal of Ecology*, London, 1936, Vol XXIV, No. 2, pp 479-501, figs 1-8. References, p 501.

Brown, Nellie A. Privat and jasmine galls produced by a species of Phomopsis. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No 8, pp 795-799, fig 1.
[*Phomopsis* sp. on *Ligustrum vulgare* and *Jasminum nudiflorum*].

Brown, Nellie A., and Gardner, F. E Galls produced by plant hormones, including a hormone extracted from Bacterium tumefaciens. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No 7, pp. 708-713, figs 1-4

Bua, Gaetano. Un quinquennio di osservazioni bio-ambientali sulla mosca delle olive *La Meteorologia Pratica*, Perugia, 1936, anno XVII, n 3, pp. 112-126, figg 1-2.
[*Dacus oleae*].

Carter, J. C. Thyrostroma compactum on Ulmus pumila *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, pp. 801-804, fig 1

Carter, J. C. Cytosporina ludibunda on American elm *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, pp. 805-806.

Chester, K. Starr. Serological tests with Stanley's crystalline tobacco-mosaic protein. *Phytopathology*, Lancaster, Pa., 1936, Vol 26, No. 8, pp. 715-734, figs. 1-7. Literature cited, p 734.

Chester, K. Starr Separation and analysis of virus strains by means of precipitin tests. *Phytopathology*, Lancaster, Pa , 1936, Vol 26, No. 8, pp. 778-785. Literature cited, pp. 784-785.

Chowdhury, S. C. A disease of *Zea Mays* caused by *Colletotrichum graminicolum* (Ces.) Wils. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. III, pp. 833-843, fig. 1, pls. XLVIII-XLIX References, p. 843

Christie, J. R., and Arndt, C. H. Feeding habits of the nematodes Aphelenchoides parietinus and Aphelenchus avenae. *Phytopathology*, Lancaster, Pa , 1936, Vol. 26, No. 7, pp. 698-701, fig. 1.

Cristinzio, M. Studio sulla ruggine delle Drupacee (Puccinia Pruni-spinosae, Pers) R. Osservatorio regionale di Fitopatologia di Portici (Napoli) Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R. Università di Napoli. *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno*, V, Portici, 1936, pp. 15-60, figg. 1-5, tav. III-IV. Bibliografia, pp. 45-48.

DASTUR, R. H. A preliminary note on cotton failure in the Punjab and some abnormalities in the plant. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. II, pp. 377-395, pls. XXIX-XXXI. References, p. 395.

DELASSUS, [M.]. Un dangereux parasite du trèfle d'Alexandrie. *Bulletin de la Société des Agriculteurs d'Algérie*, Alger, 1936, 79ᵉ année, nº 495, p. 127-128. [*Apion virens*].

DIEHL, R. Les problèmes actuels de l'amélioration et des champs d'expériences de pommes de terre. (Comportement des variétés à l'égard des maladies de dégénérescence). *Le Sélectionneur*, Versailles, 1936, vol. V, fasc. 2, p. 81-89.

DIXON, Lawrence F., MCLEAN, Ruth A., and WOLF, Frederick A. Relationship of climatological conditions to the tobacco downy mildew. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, pp. 735-759, figs. 1-5. [*Peronospora tabacina*].

DOOLITTLE, S. P., and ALEXANDER, L. J. Injury to greenhouse tomatoes as a result of a combined infection with the viruses causing tomato and cucumber mosaic. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 920-923, figs. 1-2.

DORAN, William L. Vinegar as a soil disinfectant. *Science*, Lancaster, Pa., 1936, New Series, Vol. 84, No. 2177, pp. 273-274.

DRECHSLER, Charles. Pythium graminicolum and P. arrhenomanes. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No 7, pp. 676-684, figs. 1-3. Literature cited, pp. 683-684.

DUFRÉNOY, [J.]. Le traitement du sol, désinfection, amendement, fumure, en vue de combattre chez les plantes agricoles de grande culture les affections parasitaires et les maladies de carence. *Annuaire agricole de la Suisse*, Berne, 1936, 37ᵉ année, 7ᵉ fasc, p. 679-728, fig 1-10.

EDWARDS, E. T. Witches' broom of lucerne. A serious disease in inland areas. *The Agricultural Gazette of New South Wales*, Sydney, 1936, Vol. XLVII, Pt. 8, pp. 424-426, figs. 1-4. [A virus disease]

EIDMANN, H. Die Nonne in Ostpreussen. Ein Beispiel moderner Organisation eines forstlichen Grossschädlingsproblem. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 208-215. [*Lymantria monacha*].

EIDMANN, H. Zur Frage der Blattwespen-Prognose. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 229-234. [*Diprion pini*].

ESCHERICH, K. Fortschritte der Forstentomologie. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 183-186.

FAES, H. La préservation des plantes cultivées. D'une part, par la protection des auxiliaires naturels; d'autre part, par l'élevage et la multiplication d'animaux et végétaux ennemis des déprédateurs et parasites. *Annuaire agricole de la Suisse*, Berne, 1936, 37ᵉ année, 7ᵉ fasc. p. 759-773. [With summary also in German].

FERNANDO, M. Mottle leaf of citrus: its incidence and control. *The Tropical Agriculturist*, Peradeniya, Ceylon, 1936, Vol. LXXXVI, No. 6, pp. 332-334, 1 pl. References, p. 334. [A serious physiological disorder of citrus trees in Ceylon].

Fischer, George W. The susceptibility of certain wild grasses to Tilletia tritici and Tilletia levis. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 876-886, figs. 1-3. Literature cited, pp. 887-888.

Foëx, E. La lutte contre les affections parasitaires des plantes de grande culture par l'adoption de méthodes de culture (assolement et travail du sol) rationnelles. *Annuaire agricole de la Suisse*, Berne, 1936, 37e année, 7e fasc., p. 668-678.

French, O. C. Application of sulfuric acid for weed control. *Agricultural Engineering*, Saint Joseph, Michigan, 1936, Vol. 17, No. 8, pp. 339-340, figs. 1-4.

Friedmann, Giovanni. La lotta contro il maggior nemico dell'alpicoltura: il cervino ("Nardus stricta" L.). *L'Alpe*, Firenze, 1936, anno XXIII, n. 7-8, pp. 231-236, 6 figg.

Fuchs, W. H. Die Bestimmung der physiologischen Resistenz. *Der Forschungsdienst*, Neudamm und Berlin 1936, Bd. 2, Heft 6, S. 294-310. Schrifttum, S. 307-310.

Garnett, C. B. Derris root. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1936, Vol. II, No. 2, pp. 111-113. References, p. 113.

Gassner, G., und Goeze, G. Einige Versuche über die physiologische Leistungsfähigkeit rostinfizierten Getreideblätter. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 4, S. 371-386, Abb. 1-13. Literatur, S. 385.
[*Puccinia*].

Gassner, G., und Hassebrauk, K. Untersuchungen zur Frage der Getreiderostbekämpfung mit chemischen Mitteln. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 4, S. 427-454. Schriftennachweis, S. 454.
[*Puccinia* spp.].

Gaumann, Ernst. Quelques problèmes d'immunité. *Annuaire agricole de la Suisse*, Berne, 1936, 37e année, 7e fasc., p. 729-744, fig. 1-7. Littérature, p. 744.

Gehlsen, C. A. Derris (Tubawurzel). *Der Tropenpflanzer*, Berlin 1936, 39. Jahrg., Nr. 8, S. 345-352. Literatur, S. 352.

Georgi, C. D. V., Lambourne, J., and Teik, Gunn Lay. Preliminary selection experiments with Derris. *The Malayan Agricultural Journal*, Kuala Lumpur, 1936, Vol. XXIV, No. 8, pp. 374-389. References, p. 389.
[*Derris* spp.].

Goffart, H. Neue Wirtspflanzen von Heterodera schachtii Schmidt. IV. Beitrag zu: Rassenstudien an Heterodera schachtii Schm. *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 8, S. 359-364. Schriftenverzeichnis, S. 364.

Goidanich, G[abriele]. Sulle cause della cosiddetta « defogliazione primaverile » del pioppo in alta Italia. *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di scienze fisiche, matematiche e naturali, Roma, 1936, vol. XXIV, fasc. 1-2, pp. 27-30.
[See this *Bulletin*, No. 10, 1936, p. 231].

Gokhale, V. P. Preliminary observations on small-leaf disease in cotton. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. II, pp. 475-480. Reference, p. 480.
[The disease is a teratological malformation].

Gómez-Menor O., Juan. Un insecto que ataca al cocotero en su primera edad. *Revista de Agricultura y Comercio*, Ciudad Trujillo, República Dominicana, 1936, vol. XXVII, núm. 83, págs. 2570 y 2571, 5 figs.
[*Porphyraspis sanguinea*].

Goss, R. W. Fusarium wilts of potato, their differentiation and the effect of environment upon their occurrence. *American Potato Journal*, Sommerville, New Jersey and New Brunswick, New Jersey, 1936, Vol. XIII, No. 7, pp. 171-180. Literature cited, p. 180.

Greenfeld, E. K. An injurious weevil of the New Zealand flax. *Soviet Subtropics*, Moscow, 1936, 10 (26), pp. 44-48, 4 figs.
[In Russian, with title and summary in English. — *Trionymus diminutus* on *Phormium tenax*].

Guillemet, Raymond. Sur les punaises du blé et l'effet de leurs piqûres. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1936, tome 203, nº 12, p. 570-573.
[*Aelia cognata*].

Gulati, A. N. A note on a new type of progressive damage to the structure of cotton hair caused by micro-organisms. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. III, pp. 861-865, fig. 1, pls. L-LI References, p. 865.

Gulyás, Antal. A magyar dohányok virusbetegségei. *Kisérletugyi Közlemények*, Budapest 1936, XXXIX. kot , 1-3 fuz., 45-70 o., I-IX. tábl. Irodalom, 68-70.o.
[In Hungarian, with titles and summaries also in German and French — ' Uber die Virus-Krankheiten des ungarischen Tabaks '. — 'Sur les maladies à virus du tabac hongrois ']

Gurney, Wm. B. In search of fruit fly parasites in India A summary of investigations made in 1935 *The Agricultural Gazette of New South Wales*, Sydney, 1936, Vol. XLVII, Pt. 7, pp. 374-378, 9 figs.
[*Opius* spp and *Syntomosphyrum indicum* collected in India for introduction into New South Wales as parasites of *Chaetodacus tryoni* and *Ceratitis capitata*].

Gurney, Wm. B. Parasites of white wax scales collected in East Africa. *The Agricultural Gazette of New South Wales*, Sydney, 1936, Vol. XLVII, Pt. 8, pp. 453-456, 464, 472, 6 figs , 1 map.
[*Scutellista cyanea*, *Diversinervus elegans*, *Bothreophryne ceroplastae*, etc., parasites of *Ceroplastes ceriferus* and *C. destructor*].

Hahn, Glenn Gardner. Immunity of Viking red currant from white pine blister rust under field conditions. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 860-875, figs. 1-2. Literature cited, p. 875.
[*Cronartium ribicola*].

Harris, W. Victor. The sisal weevil. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Nairobi, 1936, Vol. II, No. 2, pp. 114-126, figs. 1-9. References, p. 126.
[*Scyphophorus acupunctatus*].

Hilborn, M. T. The calorific value of decayed cordwood. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 905-914, fig. 1. Literature cited, p. 914.

Hildebrand, E. M. Overwintering of Erwinia amylovora in association with severe winter injury on Baldwin apple trees. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp. 702-707, fig. 1.
[*E. amylovora* = *Bacillus amylovorus*].

Holmes, Francis O. Comparison of derivatives from distinctive strains of tobacco-mosaic virus. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 896-904, fig. 1. Literature cited, p. 904.

HONIGMANN, H. L. Grossversuche mit einem neuen Vernebelungsverfahren zur Bekämpfung von Schadinsekten. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem,* Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 248.

HOPP, Henry. Appearance of Fomes igniarius in culture. *Phytopathology,* Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 915-917.

HUBAULT, Et. Un ennemi du sapin. *Revue des Eaux et Forêts,* Paris, 1936, tome LXXIV, IXᵉ série, 34ᵉ année, nº 7, p. 611-614, 1 pl.
[Spread in France of *Dreyfusia nusslini*].

HUNDERTMARK, A. Die Orientierung der Eiraupen der Nonne, *Lymantria monacha* L. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem,* Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 221-225, Fig. 1-2.

HUSAIN, M. Afzal, and AHMAD, Taskhir. Studies on *Schistocerca gregaria* Forsk. II. The biology of the desert locust with special relation to temperature. *The Indian Journal of Agricultural Science,* Delhi, 1936, Vol VI, Pt. II, pp. 188-262, figs. 1-6. References, pp. 261-262.

HUSAIN, M. Afzal, and AHMAD, Taskhir. Studies on *Schistocerca gregaria* Forsk. VI. Influence of temperature on the intensity and extent of black pattern in the desert locust hoppers bred crowded. *The Indian Journal of Agricultural Science,* Delhi, 1936, Vol. VI, Pt. III, pp. 624-664, pls XXXVI-XL. References, p. 654.

HUSAIN, M. Afzal, and BAWEJA, Kesho Das. Studies on *Schistocerca gregaria* Forsk. IV. Colour changes and sexual behaviour in desexualised *Schistocerca gregaria* adults. *The Indian Journal of Agricultural Science,* Delhi, 1936, Vol. VI, Pt. III, pp. 586-590. References, p. 590.

HUSAIN, M. Afzal, and BHATIA, Des Raj. Studies on *Schistocerca gregaria* Forsk. VII. Factors determining the movement of the vermiform larvae *The Indian Journal of Agricultural Science,* Delhi, 1936, Vol. VI, Pt. III, pp. 665-671, figs. 1-4. Reference, p. 671.

HUSAIN, M. Afzal, and MATHUR, C B. Studies on *Schistocerca gregaria* Forsk. V Pigmentation and physical exertion. *The Indian Journal of Agricultural Science,* Delhi, 1936, Vol. VI, Pt. III, pp. 591-623, pls. XXXIII-XXXV References, p. 623.

HUSAIN, M. Afzal, and MATHUR, C. B. Studies on *Schistocerca gregaria* Forsk. III Why locust eat wool ? A study in the hydromania of Schistocerca gregaria *The Indian Journal of Agricultural Science,* Dehli, 1936, Vol. VI, Pt. II, pp. 263-267. References, p. 267.

ISLER, D. A. Engineering phases of pink bollworm control. *Agricultural Engineering,* Saint Joseph, Michigan, 1936, Vol. 17, No. 8, pp. 346-348, figs. 1-6.
[*Platyedra gossypiella*].

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 44. July, 1936. *The Rhodesia Agricultural Journal,* Salisbury, 1936, Vol. XXXIII, No. 9, p. 663.
[*Nomadacris septemfasciata*].

KALINENKO, V. O. The inoculation of phytopathogenic microbes into rubber-bearing plants by nematodes. *Phytopathologische Zeitschrift,* Berlin 1936, Bd. IX, Heft 4, S. 407-416, Fig. 1-7.
[Different species of *Bacterium* have been inoculated into *Taraxacum kok-saghys* and *Scorzonera tau-saghys* by *Tylenchus* (*Tylenchorhynchus*) *multicinctus, T.* (*Chitinotylenchus*) *pratensis* and *Aphelenchus avenae*]

KATSURA, Saburo. The stunt disease of Japanese rice, the first plant virosis shown to be transmitted by an insect vector. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 887-895. Literature cited, p. 895.

KAUFMANN, O. Eine gefährliche Viruskrankheit an Rübsen, Raps und Kohlrüben. *Arbeiten aus der Biologischen Reichsanstalt für Land- und Forstwitschaft, Berlin-Dahlem*, Berlin 1936, XXI. Bd., Heft 4, S. 605-623, Abb. 1-10.

KHESWALLA, K. F. A Phoma disease of asparagus. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. III, pp. 800-802, pl. XLIII. References, p. 802.

[This appears to be the first record of *Phoma asparagi* in India].

KLEBAHN, H. Versuche über das Wesen des Virus der Mosaikkrankheit des Tabaks und über einige andere Viruskrankheiten. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 4, S. 357-370, Abb. 1-2. Literatur, S. 370.

KLOTZ, L. J. Nitrogen trichloride and other gases as fungicides. *Hilgardia*, Berkeley, California, 1936, Vol. 10, No. 2, pp. 27-52, figs. 1-7. Literature cited, pp. 51-52.

KOIDSUMI, Kiyoaki. Heat sterilization of Formosan fruits for fruit-flies (I). Preliminary determinations on the thermal death-points of *Chaetodacus ferrugineus* var. *dorsalis* Hendel and *C. cucurbitae* Coquillet. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1936, Vol. VIII, No. 2, pp. 157-165. [Bibliography], p. 165.

[In Japanese, with title also in English].

KOIDSUMI, Kiyoaki. Heat sterilization of Formosan fruits for fruit-flies (II). Results on "Tankan" (*Citrus tankan* Hayata). *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1936, Vol. VIII, No. 2, pp. 166-175.

[In Japanese, with title also in English. — *Chaetodacus*].

KOIDSUMI, Kiyoaki, and SHIBATA, Kikuo. On the velocity of heating and cooling of some fruits. (A material for the control of fruit-flies). *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1936, Vol. VIII, No. 1, pp. 82-94, 17 graphs.

[In Japanese, with title also in English. — *Chaetodacus*].

KOSTOFF, Dontcho. Virus and genic reactions in morphogenetic, physiogenetic, and phylogenetic aspects. *Phytopathologische Zeitschrift*, Berlin 1936, Bd. IX, Heft 4, S. 387-405, Fig. 1-12. Literature cited, S. 404-405.

KUNIKE, Georg. Holzschädlinge und ihre Bekämpfung. *Anzeiger für Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 8, S. 89-95, Abb. 1-25.

[*Hylotrupes bajulus, Callidium æneum, C. violaceum, Anobium pertinax, A. strictum, Ernobius mollis, Lyctus linearis, Opilo domesticus, Camponotus ligniperda, Sirex gigas, S. augur, S.* (*Paururus*) *juvencus, Gracilia minuta, Dermestes lardarius, Niptus ololeucus*].

KUNKEL, L. O. Heat treatments for the cure of yellows and other virus diseases of peach. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 809-830, figs. 1-4. Literature cited, pp. 829-830.

LAFFOND, Pierre. Les insecticides à base de rotenone. *Bulletin de la Société des Agriculteurs d'Algérie*, Alger, 1936, 79e année, n° 495, p. 70-81. Bibliographie, p. 81.

LANGENBUCH, R. Die Bekämpfung des Kartoffelkäfers in Stade 1934. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1936, Heft 52, 20 S., 10 Abb.

[*Leptinotarsa decemlineata*].

Lepore, Mariano. Malattie delle piante coltivate. Manualetto pratico. Milano, Antonio Vallardi, [1936], 101 pp., 17 figg. (Biblioteca popolare di coltura Antonio Vallardi, n. 165).

Leroy, J. V. Observations relatives à quelques Hémiptères du cotonnier. *Publications de l'Institut National pour l'étude agronomique du Congo belge (I. N. E. A. C.), Bruxelles. Série scientifique N° 10, 1936.* Gembloux, [1936], 20 p, 9 fig., 18 pl. Index bibliographique, p. 20.
[*Lygus vosseleri, Deraeocoris oculatus, Empoasca facialis, Helopeltis bergrothi*].

Leukel, R. W. Factors influencing infection of barley by loose smut. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp. 630-642. Literature cited, p 642
[*Ustilago nigra*].

Link, George K. K., and **Wilcox**, H. W. Relation of nitrogen-carbohydrate nutrition of Stayman apple trees to susceptibility to fire blight. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp. 643-655. Literature cited, pp. 654-655
[*Erwinia amylovora = Bacillus amylovorus*].

Lounsky, J. Evolution et possibilités de la désinsectisation des produits végétaux par fumigation. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1936, tome V, n° 2, p. 153-159.
[With titles and summaries in Flemish, German and English].

Mac Leod, G. F., and **Dickinson**, Wm. Bordeaux spraying in relation to growth rate and yield of potatoes in Nassau County, Long Island. *American Potato Journal*, Sommerville, New Jersey and New Brunswick, New Jersey, 1936, Vol. XIII, No. 7, pp. 180-184, 2 graphs.

Manil, P. Essais d'immunisation de plantules de betteraves contre Phoma betae Franck. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1936, tome V, n° 2, p. 210-211.

Marchal, E. Observations et recherches effectuées à la Station de Phytopathologie de l'Etat, pendant l'année 1935. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1936, tome V, n° 2, p. 105-111.
[With titles and summaries in Flemish, German and English].

Miles, Herbert W., and **Miles**, Mary. Insect pests of glasshouse crops. With a foreword by J. C. F. Fryer. Edited by H. C. Long. Surbiton, Surrey, H. C. Long, 1935, 174 pp., 15 figs, 21 pls Selected bibliography, pp. 158-161
[In this book Dr. and Mrs. Miles have tried to give growers an account of pests that occur in glasshouses, and of control measures that are suitable for dealing with such pests under the special conditions of glasshouse horticulture
The present volume is divided in the following chapters —

I. — Glasshouse conditions in relation to the occurrence and control of pests.
II. — General soil pests.
III. — Caterpillars and leaf miners.
IV. — Aphides, Capsids, and leaf-hoppers.
V. — White fly, mealy bugs, and scale insects.
VI. — Thrips and spider mites.
VII. — Eelworm pests.
VIII. — Woodlice, earwings, and miscellaneous pests.
IX. — Methods of pests control in glasshouses.

In the appendix an alphabetical list of chief glasshouse crops with associated pests and their characteristic injury is given]

Miller, Paul R. Morphological aspects of Gymnosporangium galls. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, pp. 799-801, fig. 1.
[*Gymnosporangium juniperi-virginianæ*].

Milsum, J. N. Derris cultivation in Perak. *The Malayan Agricultural Journal*, Kuala Lumpur, 1936, Vol. XXIV, No. 8, pp. 390-392. References, p. 392.

Miotto, A. Relazione sugli Osservatori antiperonosporici istituiti in provincia nel 1936. *Il Gazzettino Agricolo*, Padova, 1936, anno XIV, n. 39, p. 2.
[*Plasmopara viticola*]

Müller-Bohme, H. Ist die Anwendung arsenhaltiger Insektenmittel für Wild und Geflugel gefährlich ? Kann man auf die Hilfe des Federwildes und des Hausgeflugels bei der Bekämpfung des Kartoffelkäfers rechnen ? *Zeitschrift fur Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 9, S. 439-442.
[*Leptinotarsa decemlineata*].

Mundkur, B. B On the systematic position of the smut causing malformation of *Vitis quadrangularis*. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol VI, Pt III, pp. 876-877. References, p. 877.
[*Mycosyrinx arabica*].

Němec, Antonín. Über die Zusammensetzung der Mineralstoff in krebsbefallenen Kartoffelknollen. *Phytopathologische Zeitschrift*, Berlin 1936, Bd IX, Heft 4, S. 417-425. Schriftenverzeichnis, S. 425.
[*Synchytrium endobioticum*]

Paltrinieri, E. La processionaria del pino *L'Alpe*, Firenze, 1936, anno XXIII, n. 7-8, pp. 240-247, 2 figg.
[*Thaumetopoea pityocampa*].

Pangga, Guillermo A A biological study on some common Philippine termites. *The Philippine Agriculturist*, Laguna, P I., 1936, Vol. XXV, No 3, pp 233-265, figs. 1-6, Literature cited, pp 253-254
[*Cryptotermes nocens*, *Crypt. cynocephalus*, *Coptotermes vastator*, *Macrotermes gilvus*, *Nasutitermes luzonicus*, *Microcerotermes los-bañosensis*, *Hospitalitermes hospitalis*].

Pape, Henrich. Die Praxis der Bekämpfung von Krankheiten und Schädlingen der Zierpflanzen. Zweite, neubearbeitete und erweiterte Auflage. Berlin, Verlagsbuchhandlung Paul Parey, 1936, VIII, 427 S., 303 Abb , 8 Farbendrucktaf. Schrifttum, S. 404-408.

Peters, Gerhard. Chemie und Toxicologie der Schädlingsbekämpfung. Stuttgart, Verlag von Ferdinand Enke, 1936, 120 S., 22 Abb. (Sammlung chemischer und chemisch-technischer Vorträge. Neue Folge Heft 31).

Petit, A. Le charbon du blé: biologie, moyens de lutte. Conférence faite à la Société des Agriculteurs de la Tunisie le 25 mars 1936. Tunis, Imprimerie Gorsse, Bascone & Muscat, [1936], 16 p.
[*Ustilago tritici*].

Pierson, R. K. A method of separating the teliospores of Cronartium ribicola. *Phytopathology*, Lancaster, Pa , 1936, Vol. 26, No. 9, pp. 923-925, fig. 1.

Price, W. C. Specificity of acquired immunity from tobacco-ring-spot diseases. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp. 665-675, figs. 1-3. Literature cited, pp. 674-675.
[Virus diseases].

RALEIGH, W. P. An abnormal graft reaction in potato resulting from a virus infection of a scion on a resistant stock. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, p. 795, fig. 1.

RAVAZ, L. Où en est la question du court-noué. *Le Progrès Agricole et Viticole*, Montpellier, 1936, 53ᵉ année, nº 31, p 104-110.

RECKENDORFER, Paul. Über den Zerfall des Kupferkalkbruhe-Komplexes. (Ein analytischer Beitrag zur Kenntnis des ,, wasserloslischen ,, Kupfers). *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 9, S. 418-438. Literatur, S. 437-438.

REPÚBLICA DEL PERÚ. MINISTERIO DE FOMENTO Y OBRAS PÚBLICAS DIRECCIÓN DE AGRICULTURA, GANADERÍA Y COLONIZACIÓN Sanidad vegetal Leyes, decretos, resoluciones y reglamentos sobre la materia Publicado por la Sección Técnica de Propaganda Agropecuaria. Lima, 1936, VII, 127 págs, 27 figs.

RICCARDO, S. Secondo contributo sperimentale per lo studio delle alterazioni interne delle castagne. Regio Osservatorio regionale di Fitopatologia di Portici(Napoli)· Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della Regia Università di Napoli *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno*, V, Portici, 1936, pp 1-14, tav I-II
[See this *Bulletin*, 1935, No. 11, p 262 — *Penicillium glaucum, Rhizopus nigricans, Bacterium coli commune, Cladosporium herbarum*]

RICCOBONO, Vincenzo Coltura ed uso del piretro insetticida (*Chrysanthemum cinerariaefolium* Vis) *Bullettino della R Società Toscana di Orticultura*, Firenze, 1936, anno LXI, nn 7-8, pp. 86-90.

RIPERT, J. Sur les méthodes d'analyse chimique du pyrèthre *Annales des Falsification et des Fraudes*, Paris, 1936, XXIXᵉ année, nº 330, p 344-354. Bibliographie, p 354

ROCCHI, Marcello Effetto dei fattori meteorologici sullo sviluppo della ruggine. Il periodo critico del frumento rispetto alla ruggine *La Meteorologia Pratica*, Perugia, 1936, anno XVII, n. 2, pp. 58-65.
[*Puccinia* spp.].

ROCCHI, Marcello. Effetto dei fattori meteorologici sullo sviluppo e la diffusione della mosca dell'olivo. *La Meteorologia Pratica*, Perugia, 1936, anno XVII, n. 3, pp. 103-111.
[*Dacus oleæ*].

ROESLER, Rudolf. Herzlosigkeit an Blumenkohl durch Blasenfusse (Thrips). *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg, Heft 8, S. 95-97, Abb 1-2.
[*Thrips tabaci*].

SACHTLEBEN, Hans 50 Jahre Deutsches Entomologisches Institut der Kaiser Wilhelm-Gesellschaft. *Arbeiten uber morphologische und taxonomische Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S 169-172

SCHNELL, Raymond. Flexions pathologiques des rameaux d'Epicéa. *Revue générale de Botanique*, Paris, 1936, tome XLVIII, nº 574, p. 569-[588], fig. 1-10. Bibliographie, p [588].
[*Adelges abietis*].

SCHNELLHARDT, Otto F., and HEALD, F. D. Pathogenicity tests with Botrytis spp. when inoculated into apples. *Phytopathology*, Lancaster, Pa., 1926, Vol. 26, No. 8, pp. 786-794, figs. 1-3. Literatur cited, p. 794.

Schwerdtfeger, F. Untersuchungen über die Eignung von Kalidüngemitteln zur Bekämpfung des Engerlings (*Melolontha melolontha* L. und *Melolontha hippocastani* F.). *Zeitschrift für Forst-und Jagdwesen*, Berlin 1936, LXVIII. Jahrg., 4. Heft, S. 177-209, Abb. 1-9. Literatur, S. 208-209.

Séguy, E. Code universel des couleurs. Paris, Paul Lechevalier, éditeur, 1936, 68 p, 48 pl. (720 couleurs). Bibliographie sommaire, p. 42 (Encyclopedie pratique du naturaliste, XXX).
[With summaries in Latin, German, English, Spanish, Italian and Portuguese.— An inventory of colours for facilitating the designation of colourings for the diagnoses of the three kingdoms of nature].

Sempio, C. Influenza di varie sostanze sul parassitamento· ruggine del fagiolo, ruggine e mal bianco del frumento *Rivista di Patologia Vegetale*, Pavia, 1936, anno XXVI, nn. 7-8, pp. 201-278, graf. 1-16, figg. 1-6.Bibliografia, pp. 277-278
[*Uromyces appendiculatus*, *Puccinia triticina*, *Erysiphe graminis*].

Sempio, C. Relazione tra il pH dei substrati culturali e l'azione a distanza del piombo. *Rivista di Patologia Vegetale*, Pavia, 1936, anno XXVI, nn. 7-8, pp. 279-297, graf. 1-6, figg. 1-5

Shibata, Kikuo. Notes on the autecology of some fruit-flies (III). On the velocity and threshold of development of eggs of *Chaetodacus ferrugineus dorsalis* Hendel. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1936, Vol. VIII, No 1, pp. 95-101
[In Japanese, with title also in English].

Speyer, W. Die Wirkung von Rohbenzol auf das Pflanzenwachstum. *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 9, S. 411-417, Abb. 1-7.

Stellwaag, F. Schädlingsbekämpfung im Weinbau. Stuttgart-S., Verlag von Eugen Ulmer, [1936], 80 S, 36 Abb. (Grundlagen und Fortschritte im Garten -und Weinbau. Heft 24).

Stelzner, Gerhard. Ueber die Schädigung der Kornerernte durch den Pferdebohnenkäfer (Bruchus rufimanus) *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd, Heft 8, S. 353-358, Abb. 1-2.

Stevenson, F. J., **Schultz**, E. S, **Clark**, C. F, **Raleigh**, W. P., **Cash**, Lillian C., and **Bonde**, Reiner. Breeding for resistance to late blight in the potato. *American Potato Journal*, Sommerville, New Jersey and New Brunswick, New Jersey, 1936, Vol. XIII, No. 8, pp. 205-218. Literature cited, p. 218.
[*Phytophthora infestans*].

Suire, Jean. Contribution à l'étude des Coléophores parasites des arbres fruitiers. *Annales de l'Ecole Nationale d'Agriculture de Montpellier*, Montpellier, 1936, nouv. sér., tome XXIV, fasc. II, p. 137-158, pl. I-II. Travaux cités, p. 156-158.
[*Coleophora hemerobiella*].

Swingle, Roger U. A preliminary note on sexuality in Ceratostomella ulmi. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 925-927.

Takahashi, Ryoichi. Hedges in Formosa considered from the standpoint of economic entomology. *Journal of the Society of Tropical Agriculture*, Taiwan (Formosa), Japan, 1936, Vol VIII, No. 1, pp. 78-81.
[In Japanese, with title also in English].

Tilemans, Em. Le roténone, préparation, et usages en Entomologie appliquée. *Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux*, Gembloux, 1936, tome V, nº 2, p. 186-205. Bibliographie, p 198-205.
[With titles and summaries in Flemish, German and English].

Trotter, A[lessandro]. Ulteriori osservazioni sulle "virosi" del *Cestrum Parqui* L'Her. R. Osservatorio regionale di Fitopatologia di Portici (Napoli). Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R. Università di Napoli. *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno*, V, Portici, 1936, pp. 61-64, tav. V-VI.
[See this *Bulletin*, 1935, No. 11, p. 265].

Trotter, A[lessandro]. Biologia della peronospora della vite e lotta antiperonosporica. R. Osservatorio regionale di Fitopatologia di Portici (Napoli): Sezione di Patologia vegetale (Laboratorio di studio e sperimentazione) presso la Facoltà di Agraria della R. Università di Napoli. *Ricerche, osservazioni e divulgazioni fitopatologiche, per la Campania ed il Mezzogiorno*, V, Portici, 1936, pp. 65-79, figg 1-9, tav. VII.
[*Plasmopara viticola*].

Ullstrup, Arnold J. The occurrence of Gibberella fujikuroi var. subglutinans in the United States. *Phytopathology*, Lancaster, Pa, 1936, Vol. 26, No. 7, pp. 685-693, figs. 1-2. Literature cited, p. 693.

Uppal, B N., and **Kamat**, M. N. Gummosis of citrus in Bombay. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. III, pp. 803-822, figs. 1-2, pls XLIV-XLVI. References, p. 822.
[The gummosis reported on *Citrus sinensis* is caused by a typical strain of *Phytophora palmivora* in the ' rubber group ' of that species].

Uppal, B N., and **Weston** Jr., Wm. H. The basis for merging *Sclerospora indica* with *Sch. philippinensis*. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. III, pp. 715-719, pl. XLII. References, p. 719.

van der Vecht, J. Proeven met derris tegen insectenplagen in Nederlandsch-Indie *Landbouw*, Buitenzorg 1936, XI jaarg., no. 10, blz 401-465, fig. 1-5. Literatuur, blz. 460-461.
[In Dutch, with title and summary in English:— ' Experiments with derris for control of insect pests in the Netherlands Indies '].

Volkart, [A.]. Die Bekämpfung der Pflanzenkrankheiten durch die Zuchtung immuner und resistenter Sorten. *Annuaire agricole de la Suisse*, Berne, 1936, 37ᵉ année, 7ᵉ fasc., p. 745-758. Literatur, p. 757-758.

v. Finck, E. Untersuchungen über das Auftreten der Tachine *Parasetigena segregata* Rond. während einer Nonnenkalamität. *Arbeiten uber physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 226-229.
[*P. segregata*, a parasite of *Lymantria monacha*].

v. Tubeuf. Agrilus betuleti Ratzb. an den Birken im forstbotanischen Garten in München. *Zeitschrift fur Pflanzenkrankheiten* (*Pflanzenpathologie*) *und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 9, S 442-447, Abb 1-2

Waterman, Alma M., and **Miller**, J. Armstrong. A die-back of Douglas fir. *Phytopatology*, Lancaster, Pa., 1936, Vol. 28, No. 8, pp. 804-805.
[*Sphæropsis* sp. on *Pseudotsuga taxifolia*].

Weiss, Alfredo L. Precauciones a tenerse en cuenta en la aplicación de cebos tóxicos contra la langosta. *La Propaganda Rural*, Montevideo, 1936, año XXXV, n.º 800, pág. 61.
[*Schistocerca paranensis*].

Wenzl, Hans. Das „ Blütenfeuer „ der Tulpen. (Ein verheerendes Auftreten des Tulpen- Grauschimmelpilzes Botrytis parasitica Cav.). *Gartenzeitung*, Wien 1936, Nr. 10, S. 123-125, Fig. 80-84.

West, J. Leaf curl of tobacco in Southern Nigeria. *Tropical Agriculture*, Trinidad, B. W. I., 1936, Vol. XIII, No. 9, pp. 242-244, 1 graph, 1 map, pls. I-III. References, p. 244.
[A virus disease].

Wheeler, E. J. Inoculation of potato seedlings with the yellow dwarf virus. *American Potato Journal*, Sommerville, New Jersey and New Brunswick, New Jersey, 1936, Vol. XIII, No. 8, pp. 221-223.

Whipple, Otis C. Spotted wilt of garden pea. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 918-920, fig. 1.
[A virus disease].

Wolf, Frederick A., McLean, Ruth A., and Dixon, Lawrence F. Further studies on downy mildew of tobacco. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 8, pp. 760-777, figs. 1-8 Literature cited, pp. 776-777.
[*Peronospora tabacina*].

Wollenweber, H. W., und Hochapfel, H. Beiträge zur Kenntnis parasitärer und saprophytischer Pilze. II. Monochaetia und Pestalotia und ihre Beziehung zur Fruchfäule. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Bd., Heft 9, S. 401-411, Abb. 1-7.
[Also see this *Bulletin*, 1936, No. 9, p. 215].

Yarwood, Cecil E. The tolerance of Erysiphe polygoni and certain other powdery mildews to low humidity. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 9, pp. 845-859.

Zacher, Friedrich. Milben-Schäden an Getreide, Mehl und anderen Waren. *Mitteilungen der Gesellschaft für Vorratsschutz E. V.*, Berlin 1936, 12. Jahrg., Nr. 5, S. 57-59, Abb. 1-2.

Zacher, Friedrich. Beiträge zur Kenntnis einiger Vorratsschädlinge. *Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, Berlin-Dahlem 1936, Bd. 3, Nr. 3, S. 262-264.
[*Ephestia elutella, E. kühniella, Plodia interpunctella, Aphomia gularis, Tribolium destructor, Xylobiops basilare*].

Zaumeyer, W. J., and Kearns, C. W. The relation of aphids to the transmission of bean mosaic. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 7, pp. 614-629. Literature cited, p. 629.

Prof. Alessandro Brizi, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Angola: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

During the months of June and July, 1936, hopper bands were reported in different localities of the provinces of Luanda, Huila (21,280 kilos of hoppers were destroyed in the circumscription of Quilengues), and Benguela

Swarms have also been reported as having caused some damage to crops in the provinces of Luanda, Huila, Benguela and Bié The movements of the swarms increased in intensity in the province of Huila during the month of July The swarms originated from South-West Africa

Australia: The Plague Grasshopper in Queensland §

In September, 1934 very large hatchings of the plague grasshopper, *Chortoicetes terminifera* Walker, took place in the Darling Downs and Goodiwindi districts of Queensland. These hoppers emerged from eggs laid during the previous autumn.

During September of this year grasshoppers have once more appeared in the Milmerran district, which was part of the area infested during the 1934 outbreak. On this occasion, however, the first reports are of winged grasshoppers and not of young hoppers emerging on the egg bed sites.

---

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. Jorge de Barros Rodrigues Queiroz, Director, Laboratory of Plant Pathology and Agricultural Entomology, Luanda, attached as technical adviser to the Services of Locust Control, transmitted to the Institute by the Government General of the Colony.

§ Communication from the official correspondent of the Institute, Mr. Robert Veitch, Chief Entomologist and Director of Research, Department of Agriculture and Stock, Brisbane, Queensland, Australia.

Eritrea: Locusts *

During the months of September and October, 1936, no locusts have been noted in the Colony.

India: Some New Diseases of Sugar Cane Discovered in the Punjab †

(1) *Cytospora sacchari*, Butl.

The disease has been found on several specimens received from different parts of the Punjab Province. Coimbatore varieties of sugar-cane Nos. 223, 312, 313, 385, 392, 394 and several others have been found infected by this disease Symptoms become very prominent on the rind by the formation of spore bodies when the canes are dried and when they have been buried in the soil.

(2) *Cephalosporium sacchari*, Butl.

This causes wilt of grown-up sugar-cane plants.

(3) *Helminthosporium* sp.

This has been found to affect seedling canes.

(4) Some cases of Root Rot of sugar-cane have also been observed.

Southern Rhodesia: Locust Invasion, 1932-1936 §

Monthly Report No 46 September, 1936.

The Red Locust (*Nomadacris septemfasciata*, Serv) has shown increased activity during September, and swarms have been reported in all parts of the Colony

Most of the swarms have been described as ' large ' or ' very large ', and in some cases, it has taken several hours for the swarm to pass over a fixed point

The direction of flight has included most points of the compass and no particular trend has been apparent.

Some damage to winter crops has been reported.

No disease or parasite attack has been recorded.

Reports from territories to the north of the colony indicate increased activity of this species of locust This is the direction from which swarms have arrived to breed in the Colony during the present swarm cycle, and the outlook for the coming wet season is considerably less favourable than at this time last year.

---

* Communication from Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

† Communication from the official correspondent of the Institute, Mr. RAI SAHIB JAI CHAND LUTHRA, M Sc., D. I. C. (London), I. A. S, Professor of Botany, Punjab Agricultural College, Lyallpur, India.

§ Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia

LEGISLATIVE AND ADMINISTRATIVE MEASURES

England. — Under the Pharmacy and Poisons Act of 1933 and the Poisons Rules, 1935, professional farmers or horticulturists are in a special position in respect of the purchase of poisonous insecticides, fungicides, dips and weedkillers.

(1) In the first place, it may be pointed out that there are three categories of seller with whom the professional may deal:—

A. — Authorized Sellers of Poisons — a category confined solely to those who keep chemists' shops.

B. — Listed Sellers of Part II Poisons — who comprise horticultural sundriesmen, ironmongers and other shopkeepers who are registered by the Local Authority for the retail sale of the more commonly used poisons.

C. — Wholesale or Manufacturing Firms — who are not shopkeepers.

(2) The professional may obtain from any of these sellers the following poisons:—

Arsenical dips and sheep washes.
Calcium and copper arsenates and arsenites as insecticides and fungicides.
Lead arsenate
Nicotine
Mercuric chloride
Mercuric iodide, organic compounds of mercury
Paris green (copper acetoarsenite)
as insecticides, fungicides or seed dressings.

The professional, in purchasing any of these chemicals, must either himself be known to the seller as a person to whom poisons may properly be sold, or produce a certificate to the same effect from some householder known to the seller to be a responsible person of good character. When making a purchase at a shop, the purchaser must sign the ' Poisons Book ', or, if he is ordering by post, provide the seller with an order in writing signed by himself, stating his address, trade or business, the quantity of the article, and the purpose for which it is needed. If he urgently requires the poisons and is prevented by some emergency from attending to sign the 'Poisons Book' or send a signed order, he may obtain delivery by ordering the poison by telegram or telephone, provided that within 24 hours he either signs the 'Poisons Book' or provides the order in writing indicated above (penalty for failure to do so £ 50).

(3) The professional cannot obtain sodium or calcium cyanide from a listed seller of Part II Poisons, but may do so from an authorized seller of poisons (i. e., a chemist's shop) or from a wholesale or manufacturing firm. Again, he must sign the 'Poisons Book' or send a written order as in (2).

(4) Other agricultural and horticultural ' poisons ' — e. g., formaldehyde or sulphuric acid, can be obtained from any of the sellers indicated in para. (1) without formality.

* *Mon. 12 Ingl.*

(5) Strychnine may no longer be lawfully supplied for any purpose except in the form of a medicine — e. g., it may not be sold for the destruction of vermin.

(6) The Act requires certain precautions in respect of the labelling of poisons and the containers in which they are kept. Where the farmer or horticulturist buys a bulk supply of any poison and then issues it to his employees in other containers, he must see that each container is correctly labelled and that it is sufficiently strong to prevent leakage under ordinary risks. Where a bottle holding 6 pints or under is used, it must be a ' poison bottle ' — i. e., fluted vertically with ribs or grooves so as to be recognized by touch. Such procedure as the keeping or issue to employees of nicotine in beer bottles, or lead-arsenate powder in paper bags, is illegal, and by so doing the farmer will render himself liable to heavy penalties.

(7) It is unlawful for any person knowingly to transport certain poisons, among them being arsenical poisons, barium salts, hydrocyanic acid, cyanides and nicotine, in any vehicle in which food is being transported, unless the food is carried in a part of the vehicle effectively separated from that containing the poison, or is otherwise adequately protected from the risk of contamination.

Under the Pharmacy and Poisons Act of 1933, and the Poisons Rules, 1935, amateur gardeners or horticulturists are in a different position from the professional in respect of the purchase of poisonous insecticides and fungicides.

(1) Under the Act, retail sellers of these poisons are divided into two categories:—

A — Authorized Sellers of Poisons — a category confined solely to those who keep chemists' shops.

B. — Listed Sellers of Part II Poisons — who comprise horticultural sundriesmen, ironmongers and other shopkeepers who are registered by the local Authority for the retail sale of certain of the more commonly used poisons.

(2) The amateur may obtain the following insecticides and fungicides only from a chemist's shop:—

Mercuric chloride and other mercuric substances; sodium arsenite and arsenical weedkillers; sodium and potassium cyanide.

When purchasing these poisons the purchaser must sign the ' Poisons Book ' of the seller. Moreover if the purchaser is not known to the seller to be a person to whom poisons may properly be sold, he must produce a certificate to this effect, signed by a householder known to the seller as a responsible person of good character.

(3) The amateur may obtain either from a chemist's shop or the shop of a listed seller of Part II Poisons, the following poisons:—

Barium silico-fluoride; calcium arsenate; lead arsenate; nicotine; Paris green (copper acetoarsenite).

When purchasing any of the above poisons, the purchaser must sign the ' Poisons Book ' and be known to the seller as indicated in the previous paragraph.

(4) It should be noted that the amateur cannot purchase by post any of the poisons of which the sale involves the signing of the ' Poisons Book '.

(5) Most of the other poisons likely to be required by the amateur — e. g., barium carbonate in rat poisons, sodium fluoride, formaldehyde, and caustic soda — may be obtained either from a chemist's shop or the shop of a listed seller of Part II Poisons without formality, and, in such instances, he may purchase by post. (*The Journal of the Ministry of Agriculture*, London, November 1936, Vol XLIII, No. 8, pp. 709-712).

Argentine Republic. — By Decree No. 81.277 of 28 April, 1936, it is established that the bureaux of the ' Dirección del Registro de Créditos Prendarios ' shall renew the pledges made on barriers as provided by the National Committee of Defense against the South American locust [*Schistocerca paranensis*], or its representative the National Bank of the Republic, in compliance with the periods agreed upon by the contracting parties in the original pledge. (*Boletín Oficial de la República Argentina*, Buenos Aires, 5 de agosto de 1936, año XLIV, núm. 12 627, pág. 148).

⁂ By Decree No 81.294 of the same date, the ' Dirección de Defensa Agrícola ', dependent on the Ministry of Agriculture, temporarily and according to the Ministerial ' Acuerdo ' No 78.377 of 14 March, 1936, [see this *Bulletin*, 1936, No. 10, p 223], is authorized to engage direct the workmen employed in the moving of materials to be used during 1936 in the campaign against the South American locust [*Schist. paranensis*]. (*Ibid*, págs 149 y 150).

⁂ By Decree ' reglamentario ' No. 83.732 of 3 June, 1936, the present dispositions of Law No. 4048 of 10 July, 1902, relating to the importation of plants and parts of plants into the country are coordinated and made into a single General Regulation, so as to avoid variations in interpretation which may be given to the said dispositions and which rendered difficult the execution of the above mentioned Law. (*Ibid.*, 25 de julio de 1936, núm. 12 613, págs. 881 a 888).

Australia (South Australia). — By Regulation dated 7 May, 1936 the plant known as Caltrop (*Tribulus terrestris*) is declared to be a noxious weed within that portion of the State comprising the Corporation of the town of Murray Bridge for the purposes of the Noxious Weeds Act, 1931. (*The South Australian Government Gazette*, Adelaide, May 7, 1926, No. 22, p. 968).

Australia (Western Australia). — On 15 April, 1936 Afghan Thistle (*Solanum hoplopetalum*) has been declared a noxious weed in the Corrigin Road Board District. (*Government Gazette of Western Australia*, Perth, April 17, 1936, No. 22, p. 564).

⁂ On 6 May, 1936 the same plant has been declared a noxious weed within the boundaries of the Municipality of York. (*Ibid.*, May 8, 1936, No. 25, p. 654).

Austria (Confederation). — By Decree No. 122, published on 16 April, 1936, the countries considered as being free from the potato wart disease [*Synchytrium endobioticum*], and from which fresh tubers may be imported into the Confederation, by rail. are the following: Egypt, Italy, Yugoslavia, Malta, Cyprus, Spain, and Hungary. (*Bundesgesetzblatt für den Bundesstaat Österreich*, [Wien], 16. April 1936, Jahrg. 1936. 26. Stück, S. 191).

⁂ The Federal Law, published on 18 July, 1936, relating to the control of the potato wart disease, on abrogating the territorial Laws in force in the different federal provinces, gives some new and uniform dispositions for the whole Confederation.

In order to be able to verify, and if necessary, to control wart disease, areas cultivated with potatoes and potato stocks shall be subject to examination.

It is forbidden to place in commerce in any manner whatsoever, potato plants, tubers or other parts of these plants infected with wart disease or showing any suspicious symptoms.

Whosoever shall have observed on potatoes of his own property or under his care, the presence of wart disease or any alarming symptoms, shall be obliged to make an immediate declaration of same to the competent local Administration.

It rests with the Federal Institute for Plant Protection to verify the presence of wart disease, following an examination of samples forwarded. In the affirmative case, an expert shall be charged to make a local inquiry.

This official, as soon as he shall have verified the presence of wart disease and demarcated the extension of the infected area, shall declare it as being infected.

At the end of his enquiry, the official in charge shall forward all the material collected to the Government of the federal province and shall present a report to the Federal Institute for Plant Protection.

Potatoes actually attacked by wart disease, that is to say, those showing synptoms of this disease, shall not be allowed to go outside the farms where they are cultivated, but, they may be utilised there for purposes of alimentation, after having been baked or boiled, or else they must be collected and burnt, as well as all waste parts or débris of the crop.

All potatoes proceeding from an infected field or storehouse, but not showing any symptoms of wart disease, or even if pertaining to a resistant variety, shall, however, be considered as infected.

Infected potatoes or those considered as such, as well as the fresh débris, must be kept distant from manure or compost heaps and liquid manure ditches, and may not be placed in underground silos, or stored in other than infected lands.

In infected lands or on farms declared as being infected, potatoes belonging to non-resistant varieties may not be cultivated. Earth, liquid manure and compost may not be taken from a farm declared as being infected, nor utilised in other farms.

In every case where an area has been declared infected, the 'Landshautpmann,' shall determine exactly the territory infected and shall declare it closed. It shall be prohibited to transmit outside of this territory tubers and other parts of potatoes, as well as earth, manure, liquid manure or compost and the sacks in which the potatoes have been kept.

The 'Landeshauptmann' shall be able to limit the cultivation to varieties of potatoes resistant to wart disease and to regulate in detail, the modalities and methods which the farms must adopt in this case.

Where the cultivation of potatoes has been limited to resistant varieties, only potatoes belonging to varieties recognised as being resistant to wart disease by the Federal Institute for Plant Protection, may be used for planting. Also, seed potatoes must be recognised as such according to the dispositions in force relating to this matter. (*Ibid.*, 18. Juli 1936, 57. Stück, S. 469-473).

Austria (Salzburg). — By Decree No. 76, published on 7 April, 1936, for the purpose of preventing the spread of diseases and pests of fruit crops, the owners and usufructories of gardens are obliged to remove dead and unhealthy branches from the fruit trees, to uproot dead trees and to cut and destroy by fire, trees and branches attacked by 'Borkenkäfer' [*Scolytidae*] and 'Splintkäfer' [*Eccoptogaster*] and to uproot all junipers [*Juniperus sabina*] infected by the pear leaf cluster-cups [*Gymnosporangium sabinae*] and growing in the neighbourhood of pear trees. (*Landesgesetzblatt fur das Land Salzburg*, [Salzburg], 7. April 1936, Jahrg. 1936, 14. Stück, S. 121).

Austria (Vorarlberg). — By Decree No. 7, published on 18 February, 1936, for the purpose of controlling grape phylloxera [*Phylloxera vastatrix*], a Station for control and disinfection has been instituted at Rothis.

Young grape vines, including scions and stocks, intended for planting in the country must be previously examined by this Station.

The interested parties must, on sending the young vines and the scions for verification, indicate the names of the varieties of the scions as well as the stocks.

Packing material coming from another province shall, on its arrival at the Station for control and disinfection, be destroyed by fire. (*Vorarlberg Landesgesetzblatt*, Bregenz, 18. Februar 1936, Jahrg. 1936, 2. Stuck, S. 11-12).

Belgium. — By Circular No. D 60696 of 9 June, 1936, the Minister of Finance has published the regulations to be followed in the application of the Ministerial Decree of 20 May, 1936 [see this *Bulletin*, 1936, No. 8, p. 175], relating to the importation of fresh cherries originating from Germany, Spain, France and Italy, in order to prevent the introduction of the cherry fruit fly [*Rhagoletis cerasi*]. (*Deutsches Handels-Archiv*, Berlin, 1. Oktoberheft 1936, 90. Jahrg., S. 3109).

⁂ By Circular No. D 65090 of 28 July, 1936, relating to the dispositions of Circular No. D 38020 of 19 July, 1933, establishing that consignments of peaches including nectarines, and fresh apricots, must, on their arrival be submitted to inspection by the Belgian Special Phytopathological Service [see this *Bulletin*, 1933, No. 9, p. 204], an exception is made for the above-mentioned fruits coming from Italy, which will be exempted from this inspection if the consignments are accompanied by a phytosanitary certificate issued by the competent Italian authority.

Similar dispositions have been taken in respect of fresh peaches and apricots originating from Spain and France, in Circulars Nos. D 60914 and D 63398 of 29 May and 3 July, 1936 respectively (*Ibid*, S. 3116).

⁂ By Ministerial Decree of 27 August, 1936, the importation of non-inspected potato plants is forbidden Importation is allowed of plants packed in sacks having the official seal of the Inspection Service and accompanied by a health certificate supplied by the said Service (*Ibid.*, 2 Oktoberheft 1936, S. 3241).

Chile. — The Decree No 350 of 15 June, 1936, authorises the transportation to the South of the country of fresh plant products originating in the Arica Department with the exception of haricot beans, watermelons, melons and varieties of gourds, though not that called ' cosecha ', provided the following conditions are fulfilled:—

(*a*) The sole place of embarkment shall be the port of Arica, only maritime and air routes, to the exclusion of all others, being permissible.

(*b*) The products must be previously inspected by the Service of ' Sanidad Vegetal ', which shall grant a certificate authorising the transportation and which must be endorsed by the same Service at the port of destination.

(*c*) In the ports included between Arica and Taltal, unrestricted disembarkment is allowed, however, reshipment south of the last-named port is prohibited.

(*d*) To the south of Taltal, disembarkment may be made solely at Coquimbo, Valparaíso, San Antonio, Talcahuano, Valdivia, Puerto Montt, and Magallanes, and consignments may only be despatched to Santiago by air route. In the above-mentioned places, the products shall be treated as foreign goods for the purposes of the ' Sanidad Vegetal ' inspection.

Fresh agricultural produce from the Codpa valley may also be despatched by land to Pisagua and Iquique Departments, having previously been inspected by the Service of ' Sanidad Vegetal ', which shall grant a certificate authorising its transport, which certificate must be endorsed by the ' Carabineros ' of Zapiga. Reshipment to the south of Iquique by any means of transport whatsoever is still prohibited

The Service of ' Sanidad Vegetal ' is still authorised to suspend temporarily and until the Ministry of Agriculture makes a definite decision, the dispositions of this Decree if the existence of the fruit fly (*Anastrepha* sp) is verified or any other pest or disease, the spread of which is considered dangerous for agriculture in the rest of the country. (*Diário Oficial de la República de Chile*, Santiago, 3 de julio de 1936, año LIX, núm. 17,507, pág. 1983).

United States of America. — On 11 June, 1936 has been revoked Notice of Quarantine No. 6, on account of the Parlatoria scale (*Parlatoria blanchardi*) and the Phoenicococcus scale (*Phoenicococcus marlatti*), with regulations, which was promulgated on 1 March, 1913, and which became effective on 24 March, 1913, as well as the Amendment No. 1 thereto, promulgated on 18 November, 1932, which eliminated all reference in the quarantine and regulations to the Phoenicococcus scale.

Such revocation is effective on and after 1 July, 1936 (*B. E. P. Q. — Lifting Q. 6*, [Washington], 1936, 1 p.).

⁂ A joint Resolution of the Congress approved on 24 June, 1936, authorises the Minister of Agriculture to apply against locusts all methods of control that he shall consider necessary. (*Public Resolution — No. 127 — 74th Congress. H. J. Res. 642*, [Washington, 1936], 1 p.).

Hungary. — By Ordinance of the Royal Hungarian Government M E. No. 6300/1936, dated 27 October, 1936, the Bureau of Plant Protection and Commerce, founded by Ordinance M E. No. 4810/1920, has been abolished.

In place of this Bureau, by Ordinance of the Royal Ministry of Agriculture, F. M. No. 24000/1936, of 27 October, 1936, an official Phytopathological Service has been established. (*Földmivelési Értesitö*, Budapest, 1936. November 10, XLVI. évf., 21. sz., 270-272 o).

Luxemburg (Grand Duchy of). — By Grand Ducal Decree of 8 June, 1936, the destruction of rooks [*Corvus frugilegus*] is authorised at any time and by any means other than traps, cages, nets, snares and lime twigs, intended for the capture of birds. (*Mémorial du Grand-Duché de Luxembourg*, Luxembourg, 10 juin 1936, nº 44, p. 556).

Philippine Islands. — The Commonwealth Act No. 12 (B. No. 87) approved on 31 December, 1935, appropriates the sum of 100,000 pesos for the purpose of carrying out the campaign for the extermination or control of locusts, to be expended in the manner and purposes specified in Act No. 3924, and for the control of budrot [*Phytophthora palmivora*] and other cocoanut pests, and for other purposes. (*Official Gazzette*, Manila, P. I., February 18, 1936, Vol. XXXIV, No. 21, pp. 351-352).

Portugal. — The Decree-Law No. 27:108 of 16 October, 1936, imposes the following dispositions:—

Art. 1. — In the regions infected with wart disease [*Synchytrium endobioticum*], or in the protection zones, only the cultivation of potato varieties resistant to this disease is authorised for a period of five years

§ 1. The period of five years indicated above, is taken from the date on which the appearance of the disease was ascertained for the last time.

§ 2. The resistant varieties, of which the cultivation is allowed in the above-mentioned zones, will be specified in a report published every year in the *Diário do Govêrno.*

§ 3. The protection zones consist of lands situated around the infected areas, and at a distance of about 500 metres from the limits of each.

Art. 2. — In the infected areas and in the protection zones, only seed potatoes of guaranteed origin are allowed to be introduced.

§ 1. Potatoes of guaranteed origin are considered to be those which have been harvested from crops submitted to a health and genetic inspection, approved by official Services recognised by the Ministry of Agriculture.

§ 2. If there should be an insufficiency of potatoes for consumption in the zones referred to above, an introduction will be made of potato tubers belonging to resistant varieties with the authorisation of the Bureau of the Phytopathological Inspection Services

Art. 3. — The said Bureau shall inspect, at any given moment, potato crops grown in the infected areas and in the protection zones and shall order the digging up of all varieties not listed in the report referred to § 2 of article 1 of the present Decree, and the destruction and confiscation of the tubers, according to their state of development.

Art. 4. — Potatoes introduced into the lands in question contrary to the dispositions of Art. 2 of this Decree will be confiscated.

Art. 5 — Potatoes belonging to the resistant varieties allowed, cultivated in infected areas, may be utilised in these areas for the purposes of alimentation or reproduction.

Art. 6. — Potatoes pertaining to the resistant varieties allowed, cultivated in the protection zones, may be employed for the purposes of food and reproduction in the protection zone and in the corresponding infected area.

Art. 7. — Potatoes cultivated or introduced in the infected areas and in the protection zones may not be transported outside these lands without a written authorisation of the Bureau of Phytopathological Inspection Services.

§ 1. Application for this authorisation must, under penalty of refusal, be made before 31 October of every year.

§ 2 In the application, specification must be made of the quantity of potatoes in question and their variety, the place of production and place of destination.

§ 3. The application may be submitted either to the administration of the commune where the interested party resides, or to the ' brigada técnica de Campanha da Produção Agrícola ' or else sent direct to the ' Direcção Geral ' of Agricultural Services.

§ 4 The accorded authorisation must accompany the consignment to which it refers, to the place of destination, and be presented to the police and fiscal authorities as well as to the phytopathological inspectors whenever requested.

Art. 8. — Potatoes transported outside the infected areas and the protection zones, without the authorisation stated in the preceding article, shall be confiscated. If they have been sown, they will be dug up and the land will be considered as infected for a period of five years, during which all the restrictions on infected areas indicated in the present Decree shall be enforced.

Art. 9. — Whosoever may have knowledge of the existence of any new infected area shall be obliged to notify the 'Direcção Geral' of Agricultural Services either direct or through the medium of the Chief Administrator of the place of residence.

Sole paragraph. Whosoever may know of the existence of any consignment of potatoes stored or placed on sale which may have proceeded from any infected area, without the authorisation of the Bureau of Phytopathological Inspection Services, shall be obliged to make a similar notification.

Art. 10. — Transportation outside the infected areas of manure, field trash, turnips, carrots, beetroots, onions, garlic and any plant intended for replanting is prohibited.

Art. 11. — It is prohibited to transport from lands situated outside the protection zones, manure, field trash, turnips, carrots, beets, onions, garlic and any plant destined for replanting, proceeding from these zones.

Art 12. — The infringements of the dispositions of Art 10 and 11 shall be punished by a fine of 150 'escudos' and in the case of a second offense, by a fine of 300 'escudos'. These penalties shall be awarded by the district court where the infringement took place following a trial and the proceeds shall pertain to the State

Sole paragraph. In virtue of the dispositions of the present article, the phytopathological inspectors who may know of any infringement, must forward the relative report to the court through the medium of the 'Direcção Geral' of Agricultural Services.

Art. 13. — The expenses entailed by the uprooting of potatoes, which must be carried out in compliance with the dispositions of the present Decree shall be debited to the proprietors of the potato fields

Sole paragraph. Payment shall be requested by the requisite Finance Offices, following the usual method of tax collection, by means of a payment form presented by the 'Direcção Geral' of Agricultural Services, a form which shall be considered as executory

Art. 14. — The confiscation of potatoes as provided for in Art 3, 4, and 8 of the present Decree shall be effected by means of the Bureau of Phytopathological Inspection Services, which shall reserve the confiscated tubers for charitable purposes.

Art. 15. — The administrative, police and fiscal authorities shall render to the inspectors of the Bureau of Phytopathological Inspection Services any assistance they may require in executing the dispositions of the present Decree.

Art. 16. — The Decree No. 22:463 of 10 April, 1933 is revoked. (*Diário do Govêrno*, [Lisboa], 16 de outubro de 1936, I série, núm 243, págs. 1304-1305).

Rumania * — By Ministerial Decision No. 220852 of 23 October, 1936, the importation of plants, parts of plants (bulbs, tubers, rhizomes, roots) proceeding from Canada, the United States of America, Mexico, France, Belgium, England, Switzerland and Germany, as well as other countries which will be recognised as being infested with the Colorado beetle [*Leptinotarsa decemlineata*], can only be made under the following conditions:—

(1) All the above-mentioned products must be accompanied by a duly valid phytosanitary certificate, issued by an authority recognised by the Rumanian Government.

(2) The phytosanitary certificate which accompanies the consignment must state that:—

(*a*) The products contained in the consignments are free from larvae and adults of the Colorado beetle;

(*b*) The packing and the consignments of plants are free from any particles of earth;

(*c*) The locality where the plants originate, is situated at least 200 km. from the region where the Colorado beetle has been noted.

These measures may be extended, if necessary, to complete interdiction of the above-mentioned products.

Tunis. — Two Decrees of the Director of Economic Affairs, dated 29 September and 1 October, 1936, declare certain properties situated in Fouchana and in the zaouia of Mornag, (civil control of Tunis) to be infested with grape phylloxera [*Phylloxera vastatrix*]. (*Journal Officiel Tunisien*, Tunis, 13 octobre 1936, 54^e année, n^o 82, p. 1152).

Uruguay. — By Resolution No. 1475/936 of 23 July, 1936, the ' Dirección de Agronomía ' is authorized to carry out the campaign against the oriental fruit moth [*Laspeyresia* (*Cydia*) *molesta*], and to send a scientific expert to the Fruit Moth Laboratory at Moorestown, New Jersey, U. S. A., for the purpose of studying and introducing into Republic the parasites of this pest. The sum of 10.000 ' pesos ' is granted in favour of the ' Dirección de Agronomía ' for the expenses of the aforesaid campaign. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 4 de agosto de 1936, tomo 124, núm. 8983, págs 202-A y 203-A).

---

* Communication from the official correspondent of the Institute, Professor G. Arion, Chief of the Plant Protection Service, Ministry of Agriculture and Domains, Bucharest, Rumania.

RECENT BIBLIOGRAPHY

ALCOCK, N. L., and **FOISTER**, C. E. A fungus disease of stored potatoes. *The Scottish Journal of Agriculture*, Edinburgh, 1936, Vol. XIX, No. 3, pp. 252-257, pls. I-IV.
[The causal fungus is apparently undescribed in scientific literature and belongs to Sphaerioidaceae (Phomaceae)].

ANDREWS, F. W. Investigations on black-arm disease of cotton under field conditions I. The relation of the incidence and spread of black-arm disease of cotton to cultural conditions and rainfall in the Anglo-Egyptian Sudan *The Empire Journal of Experimental Agriculture*, Oxford, 1936, Vol. IV, No 16, pp. 344-356, 1 diagr, graphs I-VI. References, p 356.
[*Pseudomonas malvacearum*].

ARK, P. A., and **GARDNER**, M. W. Bacterial leaf spot of Primula *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No. 11, pp. 1050-1055, fig. 1
[*Phytomonas primulae* n. sp particularly on *Primula polyantha*. A technical description in English is appended]

ARTHUR, J. C, and **CUMMINS**, George B. Philippine rusts in the Clemens collection, 1923-1926, I. *The Philippine Journal of Science*, Manila, 1936, Vol 59, No 3, pp. 437-449, pls 1-3.
[An enumeration of 51 species of Uredinales of which 6 are new to science. The Latin diagnoses are appended]

BAKER, Kenneth F, and **HEALD**, F. D The effect of certain cultural and handling practices on the resistance of apples to Penicillium expansum *Phytopathology*, Lancaster, Pa., 1936, Vol 26, No. 10, pp 932-948. Literature cited, pp. 946-948.

BALACHOWSKY, A *Labidostomis lucida* Germ nuisible au cerisier dans le département de l'Yonne. *Bulletin de la Société entomologique de France*, Paris, 1936, tome XLI, nº 15, p 251-252

BALDACCI, Elio Ricerche intorno alla cosidetta vaccinazione delle piante *Atti dell'Istituto Botanico « Giovanni Briosi » e Laboratorio Crittogamico Italiano della R. Università di Pavia*, Siena, 1936, ser IV, vol VII, pp 3-58, fig 1 Bibliografia, pp 56-58.
[With summaries in Italian, in Latin and in English]

BALDACCI, Elio, e **CIFERRI**, Raffaele Ricerche ed esperienze sulle malattie del riso (*Oryza sativa* L). I Prove di patogenicità di funghi diversi per le piantine di riso *Atti dell'Istituto Botanico « Giovanni Briosi » e Laboratorio Crittogamico Italiano della R. Università di Pavia*, Siena, 1936, ser IV, vol VII, pp. 161-184, figg. 1-8. Bibliografia, pp. 183-184.
[With summaries in Italian, in Latin and in English] — *Sclerotium rolfsii, S. centrifugum, S oryzae, Piricularia oryzae, Helminthosporium oryzae, H sigmoideum, H sativum*]

BARNARD, C. Citrus decline in the Murrumbidgee Irrigation Areas *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1936, Vol. 9, No. 3, pp. 163-170.
[The damage is brought about by various causes]

BENNETT, L. S Studies on the inheritance of resistance to wilt (Fusarium niveum) in watermelon. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 53, No. 4, pp 295-306, figs. 1-6. Literature cited, pp. 305-306.

BERWITH, C. E. Apple powdery mildew. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp. 1071-1073.
[*Podosphaera leucotricha*].

BEST, Rupert J., and **SAMUEL**, Geoffrey. The effect of various chemical treatments on the activity of the viruses of tomato spotted wilt and tobacco mosaic. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 4, pp. 759-780, figs. 1-2, pl. XXXVI. References, p. 780.

BLATTNÝ, Ctibor. Über die Verwendung von Handelsdüngern zur Bekämpfung von Engerlingen. *Die Ernährung der Pflanze*, Berlin 1936, Bd. 32, Heft 20, S. 333.
[With titles and summaries in English and Spanish:— ' On the use of commercial fertilisers as a means of controlling the cockchafer pest '. — ' Sobre la aplicación de ciertos abonos minerales para combatir las larvas de unos coléopteros nocivos '. — *Melolontha vulgaris*].

BOGUSH, P P. Some results of a study of insects by means of light traps in Central Asia. *Bulletin of Entomological Research*, London, 1936, Vol 27, Pt. 3, pp. 377-380, figs 1-4.

BONFIGLIOLI, Oscar. Una prova di lotta contro la Cydia molesta *L'Ortofrutticoltura Italiana*, Roma, 1936, anno V, n 10, pp. 133-135

BORZINI, Giovanni Ricerche su di una *Botrytis* parassita dei frutti di kaki (*Diospyros Kaki* L). *Atti dell'Istituto Botanico « Giovanni Briosi » e Laboratorio Crittogamico Italiano della R Università di Pavia*, Siena, 1936, ser IV, vol VII, pp 299-327, figg 1-16 Bibliografia, pp. 326-327.
[With summaries in Italian, in Latin and in English — *Botrytis cinerea*]

BOUHELIER, R. Insecticides d'origine végétale, Derris et roténone *Revue Marocaine des Fruits et Primeurs de l'Afrique du Nord*, Casablanca, 1936, 6^me^ année, n° 67 p. 243-251

BREDO, H J. Sommaire des observations faites au Congo Belge et projet des futures recherches sur les acridiens migrateurs *Bulletin Agricole du Congo Belge*, Bruxelles, 1936, vol XXVII, n° 2, p 298-302
[*Locusta migratoria migratorioides, Nomadacris septemfasciata, Homorocoryphus vicinus*].

BURTH, Catherine C A leaf-spot disease of Sweet William caused by *Heterosporium echinulatum*. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts III & IV, pp. 207-215, figs 1-3. References, p. 215.
[The Latin diagnosis is given of *Didymellina dianthi* n sp., the perfect stage of *Heterosporium echinulatum*, observed on *Dianthus barbatus*]

CAIRNS, H., **GREEVES**, T. N., and **MUSKETT**, A. E. The control of common scab (*Actinomyces scabies* (Thaxt) Guss) of the potato by tuber disinfection. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No. 4, pp. 718-742. References, pp. 741-742.

CARMIN, Jos Do fungi help to exterminate red scale in Palestine ? *Hadar*, Tel-Aviv, Palestine 1936, Vol. IX, No 8, pp 173-175, figs. 1-7. Literature, p. 175.
[*Aonidiella* (*Chrysomphalus*) *aurantii* attacked by *Aspergillus depauperatus* and other species of *Aspergillus*, *Cladosporium herbarum* and *Dematium pullulans*].

CARROLL, J. Clivina fossor, Linn. (Carabidae) as a strawberry pest. *The Gardeners' Chronicle*, London, 1936, Third Series, Vol. C, No. 2588, p. 84.

CELINO, M. S Diseases of cotton in the Philippines I. Sclerotium stem rot, with notes on other diseases. *The Philippine Agriculturist*, Laguna, P. I., 1936, Vol. XXV, No 4, pp 302-320, figs. 1-6. Literature cited, pp. 316-317.
[*Sclerotium rolfsii* (?), leaf blight, cracking or splitting of the stem, *Fusarium* spp., *Schizophyllum commune*, *Septocylindrium areola*, etc.].

CHEAL, W. F. A note on the growth of the apple scab fungus (*Venturia inaequalis* Aderh.) on Bramley's Seedling apples during the winter 1934-1935. *Transactions British Mycological Society*, London, 1936, Vol XX, Pts. III & IV, pp. 310-311.

CHESTER, K. Starr. Liberation of neutralized virus and antibody from antiserum-virus precipitates. *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No. 10, pp. 949-964, figs. 1-2. Literature cited, pp. 963-964.

CHIN, Shing-mu. Preliminary observations on the Noctuid, *Prodenia litura* F. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol IV, Nos. 24 & 25, pp. 478-480, 4 figs.
[In Chinese, with title also in English].

CIFERRI, R[affaele]. Ricerche fisiologiche ed ecologiche su un'erba infestante il *Cyperus rotundus* L *Atti dell'Istituto Botanico « Giovanni Briosi » e Laboratorio Crittogamico Italiano della R Università di Pavia*, Siena, 1936, ser. IV, vol. VII, pp 185-264, figg. 1-16 Bibliografia, pp 263-264
[With summaries in Italian, in Latin and in English]

CLARK, C. F, RALEIGH, W P., and STEVENSON, F. J Breeding for resistance to common scab in the potato *American Potato Journal*, Sommerville, New Jersey and New Brunswick, New Jersey, 1936, Vol XIII, No 9, pp 256-259.
[*Actinomyces scabies*]

COMPERE, Harold A new species of Habrolepis parasitic in *Chrysomphalus aurantii*, Mask. *Bulletin of Entomological Research*, London, 1936, Vol 27, Pt 3, pp. 493-496, fig. 1.
[*Habrolepis rouxi* n. sp]

COOLEY, J S. Sclerotium rolfsii as a disease of nursery apple trees *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No 11, pp 1081-1083, fig 1.

CORBETT, G. H, and MILLER, N. C. E The oriental migratory locust (*Locusta migratoria manilensis* Meyen) and the Bombay locust (*Patanga succincta* L) in Malaya *Department of Agriculture. Straits Settlements and Federated Malay States Scientific Series, No 18*, Kuala Lumpur, 1936, 17 pp, 1 fig, 1 pl, 2 maps Bibliography, pp. 14-15

CORREA, Eduardo. Laspeyresia molesta Busck (gusano del duraznero) *Revista de la Asociación de Ingenieros Agrónomos*, Montevideo, 1936, año VIII, núm 1, págs 12 y 13.

CUNLIFFE, Norman. Studies on *Oscinella frit* Linn Inheritance of resistance of oats to attack by the fly and the combination of resistance with other characters of agricultural importance. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No 4, pp. 822-844, fig 1 References, p 844

DEAN, Henry Lee. Cuscuta as a parasite on Pteridophytes *Annals of Botany*, London, 1936, Vol L, No CC, pp 823-825, figs 1-2 Literature cited, p 825.

DEIGHTON, F. C. Preliminary list of fungi and diseases of plants in Sierra Leone. *Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information*, London, 1936, No. 7, pp. 397-424.

DEIGHTON, F. C. List of fungi collected in Sierra Leone. *Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information*, London, 1936, No 7, pp 424-433.

DEMAREE, J. B., and COLE, J. R. A disporous Gnomonia on pecan *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 1025-1029, figs 1-2
[*Gnomonia dispora* n. sp. on living leaves of *Hicoria pecan*]

DOANE, R. W., VAN DYKE, E. C., CHAMBERLIN, W. J, and BURKE, H. E. Forest insects. A text-book for the use of students in forest schools, colleges, and universities, and for forest workers. First edition. New York and London, McGraw-Hill Book Company, Inc., 1936, XII + 463 pp., 234 figs., 1 pl. Bibliography, pp. 10-12, 35-37, 55-56, 61-62, 135-137, 192-194, 250-255, 332-335, 355-356, 386-388, 406-407, 422-423. (American Forestry Series).

DODD, Allan P. The control and eradication of prickly-pear in Australia. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 503-522, pls. XV-XVII.

[*Opuntia inermis* and *O. stricta*].

FAWCETT, Howard S. Citrus diseases and their control. Second edition completely revised, rewritten, and enlarged. New York and London, McGraw-Hill Book Company, Inc., 1936, XV + 656 pp., 187 figs. Bibliography, pp. 597-638. (McGraw-Hill publications in the agricultural and botanical sciences. Edmund W. Sinnott, consulting editor).

[Ten years after the first edition, which the author had published in collaboration with H. Atherton Lee, this second edition has now appeared, entirely revised, many sections of the book having been rewritten or newly supplemented, for which latter Professor Fawcett had as collaborators Doctors A. R. C. Haas, Anna E. Jenkins, A. S. Rhoads, as well as Messrs. H. W. Nixon and A. E. Nelson.

Altogether the present second edition has been increased by seventy four pages.

The work is divided into four parts, comprising a total of twenty one chapters. In the first part, following a history of citrus-disease investigations in the different parts of the world, are indicated the species and varieties of *Citrus* and some related plants in relation to diseases; then the geographical distribution of citrus diseases, the conditions affecting their severity and distribution are shown, general principles of prevention and treatment of citrus diseases are indicated, etc.

In the second, third and fourth parts, the diseases of the roots and the trunk, branches, twigs, leaves and fruits are studied in detail.

Also the bibliography, which comprised eighteen pages in the first edition, has been considerably enlarged (it now consists of forty two pages), but it could have been even larger, as several important works, also earlier ones, are not quoted].

FERRIÈRE, Ch. The parasites of the coffee leaf-miners (Leucoptera spp.). *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 477-491, figs. 1-5. References, p. 491.

[Deals especially with following parasitic Hymenoptera:— *Trigonogastra nigricola* n. sp., *Elasmus leucopterae* Ferr., *Cirrospilus cinctiventris* n. sp., *C. longifasciatus* n. sp., *Atoposoma variegatum* Masi var. *afra* Silv., *Eulophus borboricus* Giard, *Sympiesis bukobensis* n. sp., *Pleurotropis coffeicola* Waterst., *Chrysocharis lepelleyi* n. sp., *Teleopterus violaceus* n. sp., *Derostenus coffeae* n. sp. and *Tetrastichodes leucopterae* n. sp. Description of new species in English].

FIDLER, J. Havelock. On the first instar larvae of some species of *Otiorrhynchus* found on strawberries, with notes on their biology. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 369-376, figs. 1-4. References, p. 376.

[*Otiorrynchus* (*Brachyrhinus*) *sulcatus*, *O. rugosostriatus*, *O. ovatus*, *O. rugifrons*].

FLEMING, Walter E., and BAKER, Francis E. Paris green and its homologues as insecticides against the Japanese beetle. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 53, No. 3, pp 187-195, fig 1
[*Popillia japonica*].

FLEMING, Walter E, and BAKER, Francis E. Derris as a Japanese beetle repellent and insecticide. *Journal of Agricultural Research*, Washington, D C, 1936, Vol. 53, No. 3, pp 197-207. Literature cited, pp. 206-207
[*Popillia japonica*]

FLEMING, Walter E, and BAKER, Francis E. A method for estimating populations of larvae of the Japanese beetle in the field *Journal of Agricultural Research*, Washington, D C, 1936, Vol. 53, No. 5, pp 319-331, figs 1-7
[*Popillia japonica*]

FOËX, Etienne Les charbons des céréales et les moyens de les combattre *Journal d'Agriculture pratique*, Paris, 1936, 100e année, n° 39, p 217-221 Références bibliographiques, p 221.
[*Ustilago* spp.]

GALLOWAY, L D The storage of fungal cultures *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol VI, Pt IV, pp 946-955, fig 1 References, p 955

GARCÍA RADA, G Las royas en Arequipa y Cuzco *Boletín de la Dirección de Agricultura, Ganaderia y Colonización*, Lima-Perú, 1936, año VI, nos 20-21, págs 17 a 48, 7 gráficos, 2 mapas
[*Puccinia graminis tritici, P glumarum, P triticina*]

GARCÍA RADA, G La lucha contra la marchitez del algodonero por medio del riego *Boletín de la Dirección de Agricultura, Ganaderia y Colonización*, Lima-Perú, 1936, año VI, nos 20-21, págs 69 a 71
[*Fusarium*]

GARRETT, S D Soil conditions and the take-all disease of wheat *The Annals of Applied Biology*, London, 1936, Vol XXIII, No 4, pp 667-699 References, pp 696-699
[*Ophiobolus graminis*]

GAUDINEAU, M Le traitement des semences contre la carie du blé *Journal d'Agriculture pratique*, Paris, 1936, 100e année, n° 39, p 221-222
[*Tilletia caries*]

GEORGI, C D V, and TEIK, Gunn Lay Notes on the preparation of Derris root for export together with a suggested method for evaluation *The Malayan Agricultural Journal*, Kuala Lumpur, 1936, Vol XXIV, No. 10, pp 489-502 References, p 502
[*Derris* spp].

GOIDÀNICH, Gabriele Precisazioni sull'olmo siberiano *Giornale di Agricoltura della Domenica*, Roma, 1936, anno XLVI, n 45, p 377.
[*Ulmus pumila* and its behaviour with regard to *Graphium ulmi*]

GRANBASSI, M. Di un nuovo metodo di lotta contro la cocciniglia bianca farinosa della vite *L'Istria Agricola*, Parenzo, 1936, anno XVI (n. ser), n 19, pp 411-415.
[Consists in striking bunches of grapes, infested by numerous individuals of *Pseudococcus citri* and attacked by sooty mould, with a jet of water of sufficient force to remove the insects without damaging the grapes The land round about the vines must afterwards be treated with an insecticidal solution in order to kill off any *Ps. citri* carried to the ground by the jet of water]

Gregor, Mary J. F. A disease of cherry laurel caused by *Trochila Laurocerasi* (Desm.) Fr. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 4, pp. 700-704, pl. XXXI. References, p. 704.

Gwynne-Vaughan, H. C. I., and Broadhead, Q. E. Contributions to the study of Ceratostomella fimbriata. *Annals of Botany*, London, 1936, Vol. L, No. CC, pp. 747-758, figs. 1-15, pls. XIII-XIV. Literature cited, pp. 756-757.

Hagborg, W. A. F. Black chaff, a composite disease. *Canadian Journal of Research*, Ottawa, Canada, 1936, Vol. 14, No. 9, pp. 347-359, pl. I. References, pp. 358-359.

[A study was made of the etiology of wheat discolorations that resembled bacterial black chaff. Three distinct types were found. One of these was caused by *Phytomonas translucens* f. sp. *undulosa*, the bacterial black chaff organism; another yielded *Alternaria* consistently on isolation; and a third, internodal melanism, appeared to be physiological in origin. *Phyt. atrofaciens* was occasionally present in bacterial black chaff lesions].

Hanes, Theodora B. Observations on the results of inoculating cereals with the spores of cereal rusts which do not usually cause their infection *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts. III & IV, pp. 252-292, figs 1-18. References, pp. 291-292.

[*Puccinia triticina, P. glumarum tritici, P. anomala, P coronata, P. graminis secalis*]

Harland, S. C. Genetic behaviour of a mutant in a Trinidad cotton stainer (*Dysdercus urichi*). *Tropical Agriculture*, Trinidad, B. W. I, 1936, Vol. XIII, No 10, p. 256. Literature

Harris, M. R. The relationship of Cephalosporium acremonium to the black-bundle disease of corn *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 965-980, figs. 1-2. Literature cited, p. 980.

Harris, W. Victor. A list of the termites of Tanganyika Territory, with descriptions of two new species *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 361-368, figs. 1-3. References, p. 368.

[A list of 51 species of which two (*Allodontermes morogorensis* and *Basidentitermes amicus*) are described, in English, as being new to science].

Harris, W. Victor Annotated list of insects injurious to cotton in Tanganyika. *Bulletin of Entomological Research*, London, 1936, Vol 27, Pt 3, pp. 523-528.

Hecht, Otto. A note on the biology of Chilocorus bipustulatus and its status in Palestine, *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No. 8, pp. 171.

Hervé, Joseph. Au sujet de la panachure de nos Hibiscus et de la panachure infectieuse des Malvacées. Considérations pratiques sur la culture des Hibiscus. *Bulletin Agricole*, Fort-de-France, 1936, nouv. sér., vol. V, n. 2, p. 137-141.

Hill, A. V., and Allan, J. M. Downy mildew (blue mould) of tobacco. Attempts at control by the use of (I.) sprays, and (II.) heated seed beds. *Journal of the Council for Scientific and Industrial Research*, Melbourne, 1936, Vol. 9, No. 3, pp. 220-232. Literature cited, p. 232.

[*Peronospora tabacina*].

Hirt, Ray R. A simple device for recording the time and duration of rainfall. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp. 1064-1067, figs. 1-2.

Holmes, Francis O. Interspecific transfer of a gene governing type of response to tobacco-mosaic infection. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 1007-1014. Literature cited, pp. 1013-1014.

HURD-KARRER, A. M., [and] POOS, F. W. Toxicity of selenium-containing plants to aphids. *Science*, Lancaster, Pa., 1936, New Series, Vol. 84, No. 2176, p. 252.

HUSAIN, M. Afzal, TREHAN, Kidar Nath, and VERMA, Piare Mohan. Studies on *Bemisia gossypiperda*, M. & L. No. 3 Seasonal activities of *Bemisia gossypiperda*, M. & L. (the white-fly of cotton) in the Punjab. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. IV, pp. 893-903, figs. 1-2. References, p. 903.

JACK, Rupert W. Southern Rhodesia. Locust invasion, 1932-36. Monthly Report No. 45. August, 1936. *The Rhodesia Agricultural Journal*, Salisbury, 1936, Vol. XXXIII, No. 10, p. 773.
[*Nomadacris septemfasciata*].

JANCKE, O., und MAERCKS, H. Versuche zur Bekampfung der Pflaumensägewespen. *Praktische Blatter fur Pflanzenbau und Pflanzenschutz*, Freising 1936, XIV. Jahrg., Heft 7, S. 189-198.
[*Hoplocampa*].

JOHNSON, Howard W. Effect of leaf-hopper yellowing upon the carotene content of alfalfa. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp 1061-1063, fig. 1.
[*Empoasca fabae* on lucerne].

KADEN, Oskar F. Die Nashornkäferplage der Kokospalmen im Golf von Guinea (Untersuchungsbericht über die Massnahmen zu ihrer Behebung nebst einem Beitrage zum tropischen Vogelschutz) *Der Tropenpflanzer*, Berlin 1936, 39. Jahrg., Nr. 10, S. 409-414, Abb. 1-2. Schriftenverzeichnis, S 414.
[*Oryctes* spp].

KASPRE, A. Tôlkja tôrjekatsed. *Agronoomia*, Tartu 1936, XVI aastakäik, nr. 11, p. 598-600.
[In Estonian, with title and summary in German.— ' Versuche zur Bekämpfung der Zackenschote '. — *Bunias orientalis*]

KEITT, G. W., PINCKARD, J A., SHAW, Luther, and RIKER, A J The toxicity of certain chemical agents to Erwinia amylovora *Journal of Agricultural Research*, Washington, D. C , 1936, Vol 53, No 4, pp 307-317 Literature cited, pp. 316-317.
[*E. amylovora* = *Bacillus amylovorus*].

KEY, K. H. L. Experimental studies on locomotor activity in *Locusta migratoria migratorioides*, R. & F. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 399-422, figs. 1-6. References, pp. 421-422

KLEIN, H. Z Contributions to the knowledge of the red spiders in Palestine. 2. The common red spider, *Epitetranychus althaeae* v. Haust *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No. 9, pp. 195-199, figs 1-3; No 10, pp. 219-225, figs. 4-6. Literature, p. 225.

KLEMM, M. *Aspidiotus perniciosus* Comst. in der U. d S S R *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr 10, S 99-101, Karte I.

KLINKOWSKI, M. Die Luzerne als Objekt der Pflanzenpathologie *Der Forschungsdienst*, Neudamm und Berlin 1936, Bd. 2, Heft 9, S 457-474. Schrifttum, S 463-474.

KÖCK, Gustav, LÖSCHNIG, Joseph, und MIESTINGER, Karl. Krankheiten und Schädlinge im Obstbau und ihre Bekämpfung. Vierte, gänzlich neu bearbei-

tete Auflage. Wien, Scholle-Verlag, Buchhandlungs-Gesellschaft m. b. H., 1936, 166 S., 74 Abb. (Scholle-Bucherei, 110. Bändchen).
[The authors of this popular manual on the diseases and pests of fruit crops have taken the trouble to rewrite the text and to bring it completely up-to-date, giving greater prominence than is usual in similar books to the biology of the various parasites, of which an accurate knowledge constitutes the fundamental basis of all control program.
The book comprises chapter I (Introduction to plant protection) and chapter 2 (Preventative cultivation methods) written by Mr. Loschnig; chapter 3 (Non-parasitic diseases) and chapter 4 (Diseases caused by cryptogainc parasites) written by Mr Köck, chapter 1 (Diseases caused by animal parasites) and chapter 6 (Methods of control against diseases and pests) written by Mr. Miestinger, finally chapter 7 (Annual plan of control measures and list of useful products and preparations) written together by Messrs Köck and Miestinger]

KOZLOWSKI, Antoni Soil conditions in relation to little leaf or rosette of fruit trees in California *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp. 1041-1049, fig 1 Literature cited, pp 1048-1049
[Certain parasitic fungi and unfavorable soil conditions play the most important part in the rosette of fruit trees]

KOZLOVSKY, S Le cycle biologique de *Leptinotarsa decemlineata* Say sur différentes variétés de tomate (*Solanum lycopersicum* L) *Revue de Zoologie agricole et appliquee*, Bordeaux, 1936, 35e année, n° 7, p 105-108

LACEY, Margaret S Studies in bacteriosis XXIII Further studies on a bacterium causing fasciation of sweet peas *The Annals of Applied Biology*, London, 1936, Vol XXIII, No 4, pp 743-751, figs 1-7, pl XXXIII References, p 751
[The bacterial organism dealt with has not been determined].

LADELL, W. R S. A new apparatus for separating insects and other arthropods from the soil. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No 4, pp. 862-879, figs 1-2, pl XXXIX References, pp 878-879

LAMBERT, Edmund B, and CRANDALL, Bowen S A seedling wilt of black locust caused by Phytophthora parasitica *Journal of Agricultural Research*, Washington, D. C, 1936, Vol. 53, No 6, pp 467-476, figs. 1-5 Literature cited, p 476
[*Phyt parasitica* on *Robinia pseudoacacia*].

LANGENBUCH Bericht des Kartoffelkäfer-Abwehrdienstes, Heidelberg. (Schluss). *Nachrichtenblatt fur den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr 11, S 105-108, Abb. 1-8.
[See also this *Bulletin*, 1936, No. 10, p 234 — *Leptinotarsa decemlineata*].

LEIB, P Zur Frage der Bekämpfung der Pflaumensägewespe *Anzeiger fur Schädlingskunde*, Berlin 1936, XII. Jahrg., Heft 9, S. 101-107
[*Hoplocampa fulvicornis*].

LEONARD, M D. El valor insecticida de la rotenona y el piretro. *La Hacienda*, Nueva York, E. U. A., 1936, año 31, núm 9, págs. 314 y 315.

LEVINE, Michael. Plant tumors and their relation to cancer. *The Botanical Review*, Lancaster, Pa, 1936, Vol. 2, No. 9, pp 439-455 Bibliography, pp. 452-455.
[*Bacterium tumefaciens*].

LUTHRA, Jai Chand, and SATTAR, Abdus. Some studies on the sclerotial disease of rice (*Sclerotium oryzae* Catt.) in the Punjab. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. IV, pp. 973-984, pl I,IV. References, p. 984.

MALENÇON, G. Données nouvelles sur le bayoud. *Revue de Mycologie*, Paris, 1936, tome I (n. s.), fasc. 4, p. 190-206, pl. XIII-XVII, 1 carte [*Fusarium albedinis*].

MALENÇON, G. Notulae mycologicae maroccanae. *Revue de Mycologie*, Paris, 1936, tome I (n. s), fasc 5, p. 257-275, pl. 1-2.
[See also this *Bulletin*, 1936, No. 5, p. 116.— *Puccinia* spp, *Uromyces* spp, *Pileolaria terebinthi*, *Kuhneola fici* and *K. fici* var *abyssinica*, *Phragmidium* spp, *Gymnosporangium oxycedri*, *Melampsora* spp, *Coleosporium* spp., *Zaghouania phillyreae*, *Uredo* spp and *Aecidium* spp, 12 species and 1 variety are new to Moroccan flora. The A. recalls that only three of the *Puccinia* species contained in the first list may be considered as new for Morocco].

MAMELI CALVINO, Eva Un ottimo rimedio contro i nematodi del terreno il "Cerere". *La Costa Azzurra Agricola e Floreale*, San Remo, 1936, anno XVI, n 10, pp. 228-230
[Tri-cresol-mercuric acetate]

MAMELI CALVINO, Eva Ancora sulla ruggine degli antirrini *La Costa Azzurra Agricola e Floreale*, San Remo, 1936, anno XVI, n 10, pp 234-235
[*Puccinia antirrhini* observed in 1935 at San Casciano in Val di Pesa, province of Florence, and at Bientina, province of Pisa, has recently been noted at Rome and at Bari. In the first locality, many plants sprang up from seeds of diseased stock, which had a healthy growth and flowered up to the middle of October]

MANSBRIDGE, G. H Experiments on the resistance of the flour moth (*Ephestia kuhniella* Zell.) to abnormally high temperatures. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No 4, pp 803-821, figs. 1-4, References, p. 821.

MARSH, R. W. Notes on a technique for the laboratory evaluation of protective fungicides. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts. III & IV, pp. 304-309, fig. 1. References, p 309

MARSHALL, Guy A. K. New injurious Curculionidae (Col) from South America. *Bulletin of Entomological Research*, London, 1936, Vol 27, Pt. 3, pp. 497-501, figs. 1-3.
[*Premnotrypes fractirostris* n. sp (bred from potatoes received from Peru), *Hypsonotus parceguttatus* n sp. (adults feeding on leaves of cacao in Brazil), *H. modestus* n. sp. (attacking leaves of cacao in Brazil), *Acallestes camelus* n sp. (attacking leaves and fruit of cacao in Brazil)]

MARTIN, J. Foster. Reaction of wheat varieties to composites of races of bunt occurring in the Pacific Northwest. *Journal of the American Society of Agronomy*, Geneva, New York, 1936, Vol. 28, No. 8, pp. 672-682. Literature cited, pp. 681-682. [*Tilletia tritici* and *T. levis*].

MARTIN, J. T., and TATTERSFIELD, F. The problem of the evaluation of rotenone containing plants. II. *Derris elliptica*, *Derris malaccensis* and the "Sumatra" type" roots. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No. 4, pp. 880-898, figs 1-2 References, p 898

McCubbin, W. A. Analysis of tipical plant diseases from the quarantine standpoint. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 991-1008.

Miles, Herbert W. On the biology of certain species of *Holcocneme* Kon. (Hymenoptera-Symphyta). *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 4, pp. 781-802, figs. 1-4, pls. XXXVII-XXXVIII. References, p. 801.
[*H. coeruleocarpa, H. lucida, H. crassa, H. erichsoni*].

Miles, Herbert W. On the biology of *Emphytus cinctus*, L., and *Blennocampa waldheimi*, Gimm. (Hym. Symphyta). *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 467-476, figs. 1-2, pls. XIII-XIV. References, pp. 472-473.
[Injurious to Rosaceæ].

Montgomery, H. B. S. An investigation of the temperatures lethal to some wood-decaying fungi. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts. III & IV, pp. 293-298. References, p. 298.
[*Merulius lacrymans, Poria vaporaria, Pholiota adiposa, Lentinus lepideus, Lenzites abietina, L. saepiaria, L. striata, L. trabea, Polystictus. versicolor, Polyporus hispidus, Schizophyllum commune, Fomes fraxineus*].

Mundkur, B. B. A Rhizoctonia on sweet potatoes in Bombay. *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol. VI, Pt. IV, pp. 994-995, pl. LVI. References, p. 995.
[*Rhizoctonia solani*].

Murphy, H. C., and Levine, M. N. A race of crown rust to which the Victoria oat variety is susceptible. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp. 1087-1089.
[*Puccinia coronata avenae*].

Neal, D. C., and Collins, Emerson R. Concentration of ammonia necessary in a low-lime phase of Houston clay soil to kill the cotton root-rot fungus, Phymatotrichum omnivorum. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 1030-1032.

Neuweiler, E. Der Koloradokäfer. Seine Geschichte, Biologie und Bekämpfung, *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1936, L. Jahrg., Heft 8, S. 795-810, Abb. 1-3. Benützte Literatur, S. 810.
[*Leptinotarsa decemlineata*].

Nicolas, G. Observations sur deux parasites de Statice Limonium L.: *Phleospora Jaapiana* P. Magnus et *Uromyces Limonii* (DC.) Lévy. *Revue de Mycologie*, Paris, 1936, tome I (n. s.), fasc. 4, p. 215-219.

Noble, N. S. The citrus gall wasp (*Eurytoma fellis* Girault). *Department of Agriculture, New South Wales. Science Bulletin No. 53*, Sydney, 1936, 41 pp., 18 figs. Literature cited, p. 41.

Noble, R. J. An epiphytotic of ergot in Paspalum in New South Wales. *The Journal of the Australian Institute of Agricultural Science*, Sydney, 1936, Vol. 2, No. 2, pp. 76-78.
[*Claviceps paspali*].

Okada, Yaichirô. Notes on the life history and the habits of *Succinea horticola* Reinhardt, the pest of greenhouse plants and grasses. *Journal of the Imperial Agricultural Experiment Station*, Nisigahara-Mati, Takinogawa-Ku, Tôkyô, Nippon, 1935, Vol. II, No. 4, pp. 499-508.
[In Japanese, with title and summary in English]

Paillot, A. Nouvelles observations sur la biologie du carpocapse et sur les traitements insecticides et fongicides des poiriers et pommiers. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1936, tome XXII, nº 25, p. 867-870.
[*Cydia pomonella*].

Perkins, J. F. On a new species of *Nemeritis* bred from the bee-hole borer of teak (Hym. Ichn.). *Bulletin of Entomological Research*, London, 1936, Vol 27, Pt. 3, pp. 431-433.
[*Nemeritis tectonae* n. sp. bred from *Xyleutes ceramica*. — The Perkins's note is accompanied by ' A note on the biology of Nemeritis tectonae, J. F. Perk. ', by D J. Atkinson].

Petch, T. *Cordiceps militaris* and *Isaria farinosa*. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts. III & IV, pp. 216-224.

Preston, N. C. The parasitism of *Myrothecium roridum* Tode. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts III & IV, pp. 242-251, pls. IV-V.
[On *Viola*].

Reed, H. S., and Parker, E. R. Specific effects of zinc applications on leaves and twigs of orange trees affected with mottle-leaf. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol 53, No. 5, pp. 395-398, fig. 1.
Mottle-leaf or foliocellosis is a condition of partial chlorosis].

Remsberg, Ruth, and Hungerford, C. W. Black stem of alfalfa in Idaho. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 1015-1020, fig. 1. Literature cited, p. 1020.
[*Phoma medicaginis* of which *Pleospora rehmiana* is the perfect stage].

República Argentina. Ministerio de Agricultura de la Nación. Memoria de la Comisión Central de Investigaciones sobre la Langosta correspondiente al año 1934. Buenos Aires, 1936, 249 págs., 4 figs., 3-5 láms, 29 mapas, 16 gráficos.
[Contains —
Nota del Presidente de la Comisión Central.
Introducción.
Informe de la Primera Comisión Exploradora, por R. Maldonado Bruzzone.
El *Sporotrichum paranense* March., en la lucha contra la langosta (*Schistocerca paranensis*), por E. F. Godoy.
Informe de la Segunda Comisión Exploradora, por P. Koehler.
Enfermedades de la langosta, *Sporotrichum paranense* March., *Coccobacillus acridiorum* d'Hér., por R. Fresa.
Informe de la Tercera Comisión Exploradora, por Juan B. Daguerre.
Características climáticas y botánicas del Territorio del Chaco y Norte de la provincia de Santa Fé, en las zonas recorridas por la Tercera Comisión de Investigaciones sobre la Langosta el año 1934, por Teodoro Meyer.
Informe preliminar sobre saltonas y langostas de Bowen (Mendoza) y algunas langostas de otras procedencias, por Carlos Bruch.
Investigaciones sobre la langosta en la región serrana de Alta Gracia (Provincia de Córdoba), por Carlos Bruch.
Observaciones del Dr. Miguel Fernández (carta al Dr. Carlos Bruch).
Estado actual de mis conocimientos acerca del « champi » (*Trox suberosus* Fab.), por Pedro Denier.

Contribución al conocimiento de la langosta *Schistocerca paranensis* Burm. y sus enemigos naturales, por Kenneth J Hayward.
Informe sobre cebos tóxicos y otros productos para destruir la langosta
Compuestos arsenicales y su forma de acción destructora de la langosta].

RIKER, Regina S Fusarium lateritium v fructigenum in relation to wilt of China aster. *Phytopathology*, Lancaster, Pa, 1936, Vol. 26, No. 11, pp. 1085-1086. [On *Callistephus chinensis*].

RIPPER, Walter Lebensweise und Bekämpfung des Halmerdflohes (Chaetocnema aridula Gyllh) *Zeitschrift fur angewandte Entomologie*, Berlin 1936, Bd XXIII, Heft 3, S 370-416, Abb 1-23 Literatur, S 415-416

ROBÁ, René-Paul El minador de las hojas del cafeto " Leucoptera coffeella, Guér ". *Boletin Agricola*, Medellín-Colombia, 1936, año IX, nº 210, págs 476 a 483, figs 1-6 Bibliografía, pág 483

ROBÁ, René-Paul Unas consideraciones sobre desinfección de productos agrícolas. *Boletin Agricola*, Medellín-Colombia, 1936, año IX, nº 212, págs 538 a 541 Bibliografía, pág 541

ROGOJANU, V Molia porumbului (Pyrausta nubilalis Hb) *Agricultura Nouă*, Cluj 1936, anul III, no 10, pag 360-364, fig 1-2

ROWE, Ethel A A study of heart rot of young sugar-beet plants grown in culture solutions *Annals of Botany*, London, 1936, Vol L, No CC, pp 735-746, figs 1-11. Literature cited, p 746
[This disease is due to boron deficiency]

SAHAYA, C B A disease of *Cyperus tegetiformis* Roxb caused by *Kawakamia cyperi* (Miyabe and Ideta) Miyabe *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol VI, Pt IV, pp 992-993, pl LV References, p 993

SCHWERDIFEGER F Zur Kenntnis der roten Kiefernbuschhornblattwespe Diprion sertifer Geoffr (Lophyrus rufus Panz) *Zeitschrift fur Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz* Stuttgart 1936, 46 Jahrg , Heft 11, S 513 534, Abb 1-8 Literatur, S 533-534

SHEFFIELD, F M L The histology of the necrotic lesions induced by virus diseases *The Annals of Applied Biology*, London 1936, Vol XXIII, No 4 pp 752-758, pls XXXIV-XXXV References, p 757

SHIRLEY, Hardy L Lethal high temperatures for conifers, and the cooling effect of transpiration *Journal of Agricultural Research*, Washington, D C , 1936, Vol 53, No 4, pp 239 258, fig 1 Literature cited, pp 257-258

SMALL, T Diseases of outdoor-grown tomatoes in Jersey *The Journal of the Ministry of Agriculture*, London, 1936, Vol XLIII, No 2, pp 117-124, figs 1-5
[*Phytophthora infestans, Didymella lycopersici, Corticium solani, Cladosporium fulvum, Verticillium albo-atrum, Heterodera marioni, Botrytis cinerea, Septoria lycopersici, Macrosporium solani, Sclerotinia sclerotiorum, Thielaviopsis basicola, Colletotrichum atramentarium, Pleospora herbarum, Alternaria tenuis, Fusarium equiseti*, virus disenses, etc].

SMITH, M A Infection studies with Sclerotinia fructicola on brushed and nonbrushed peaches *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No 11, pp 1056-1060, figs 1-2

SNELL, Walter H The relation of the age of needles of Pinus strobus to infection by Cronartium ribicola *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No 11, pp 1074-1080 Literature cited, pp 1079-1080

Squire, F. A. **Observations on the pupal respiration** of some insects of economic importance. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 381-384, figs. 1-2.
[*Pyrrhopyge amyclas, Hydrous smaragdinus, Papilio anchisiades, Brassolis sophorae, Utetheisa ornatrix, Diatraea saccharalis, Metagonistylum minense*].

Station expérimentale de l'arachide de Bambey. La rosette de l'arachide. *Bulletin des Matières Grasses de l'Institut Colonial de Marseille*, Marseille, 1936, XX^e année, n^o 8, pp. 201-205. .
[A virus disease transmitted by *Aphis laburni*].

Steiner, Paul. Beiträge zur Kenntnis der Schädlingsfauna Kleinasiens IV. *Bothynoderes punctiventris* Germ. als Zuckerrübenschädling in der Türkei. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 3, S. 339-369, Abb. 1-12. Literatur, S. 368-369.

Sung, Tsu-lien. Notes on the mulberry slug-caterpillar *Thosea postornata* Hampson (Lep. Cochlidionidae). *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, No. 23, pp. 463-466.
[In Chinese, with title also in English].

Sumstine, David R. Oriental plane tree disease. *Science*, Lancaster, Pa., 1936, New Series, Vol. 84, No. 2176, p. 247.
[*Acrosporium* sp. on *Platanus orientalis*].

Swan, D. C. Berlese's fluid: remarks upon its preparation and use as a mounting medium. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 389-391. References, p. 391.

Sy, M. Zur Bekämpfung der Rhododendronwanze *Stephanitis rhododendri* Horv. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1936, 16. Jahrg., Nr. 10, S. 98-99, Abb. 1-3.

Tao, Chia-chu. The present status of entomology in Formosa. *Entomology & Phytopathology*, Hangchow, Chekiang, China, 1936, Vol. IV, Nos. 24 & 25, pp. 480-485.
[In Chinese, with title also in English].

Tapke, V. F. Pathogenic strains in Ustilago nigra. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 10, pp. 1033-1034.

Tasugi, Heizi. On the physiology of *Typhula graminum*, Karst. *Journal of the Imperial Agricultural Experiment Station*, Nisigahara-Mati, Takinogawa-Ku, Tôkyô, Nippon, 1935, Vol. II, No. 4, pp. 443-458, fig. I, pls. XXVII-XXVIII.
[In Japanese, with title and summary also in English].

Tasugi, Heizi. The relation of the environmental factors and the treatment of oospores to the infection by oospores of *Sclerospora graminicola* (Sacc.) Schroet. (Studies on Nipponese Peronosporales IV). *Journal of the Imperial Agricultural Experiment Station*, Nisigahara-Mati, Takinogawa-Ku, Tôkyô, Nippon, 1935, Vol. II, No. 4, pp. 459-480, figs. I-III. Literature cited, p. 477.
[In Japanese, with title and summary in English].

Tattersfield, F., and Martin, J. T. The problem of the evaluation of rotenone-containing plants. III. A study of the optical activities of the resins *D. elliptica, D. malaccensis* and the "Sumatra-type" roots. *The Annals of Applied Biology*, London, 1936, Vol. XXIII, No. 4, pp. 899-916, figs 1-4. References, p. 916.
[*Derris* spp., etc.].

Tennyson, Gertrude. Invasion of cotton seed by Bacterium malvacearum. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp. 1083-1085, fig. 1.

THOMPSON H. W., and JOHNSON, L. R. On the control of household ants. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 393-397, fig. 1. References, p. 397.
[*Monomorium pharaonis*, *Acanthomyops* (*Donisthorpea*) *niger*].

TILFORD, Paul E. Fasciation of sweet peas caused by Phytomonas fascians n. sp. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 53, No. 5, pp. 383-394, figs. 1-2. Literature cited, p. 394.
[*Phyt. fascians* n. sp. on *Lathyrus odoratus*. The technical description of this new species is given in English].

TOOVEY, F. W., WATERSTON, J. M., and BROOKS, F. T. Observations on the black-stem disease of lucerne in Britain. *The Annals of Applied Biology*, London, 1936, Vol XXIII, No 4, pp. 705-717, figs. 1-4, pl. XXXII. References, p. 717.
[*Ascochyta imperfecta*]

TRAPP, George. The parasitism of *Botrytis cinerea* Pers. on *Aucuba japonica* Thunb. *Transactions British Mycological Society*, London, 1936, Vol. XX, Pts. III & IV, p 299-303, pls. VI-VII. References, p 302

UICHANCO, Leopoldo B. Secular trends of locust outbreaks in the Philippines and their apparent relation with sunspot cycles. *The Philippine Agriculturist*, Laguna, P I, 1936, Vol XXV, No 4, pp 321-356, charts 1-12, 1 map. Literature cited, pp 352-355
[*Locusta migratoria manilensis*]

ULLSTRUP, Arnold J Leaf blight of China aster caused by Rhizoctonia solani. *Phytopathology*, Lancaster, Pa, 1936, Vol 26, No 10, pp 981-990, figs 1-3. Literature cited, p 990

UVAROV, B P Locusts as an international problem *Current Science*, Bangalore, India, 1936, Vol V, No 4, pp 191-193. References, p 193

VASUDEVA, R. Sahai Studies on the root-rot disease of cotton in the Punjab. II. Some studies in the physiology of the causal fungi *The Indian Journal of Agricultural Science*, Delhi, 1936, Vol VI, Pt IV, pp. 904-916, figs 1-2. References, p. 916
[*Rhizoctonia bataticola* and *Rhiz solani*].

VERRALL, A. F The dissemination of Septoria acicola and the effect of grass fires on it in pine needles *Phytopathology*, Lancaster, Pa, 1936, Vol. 26, No 10, pp. 1021-1024.

VINCENT, HERVIAUX, et COIC. Influence du milieu sur l'apparition de la hernie du chou (*Plasmodiophora brassicae*) *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris, 1936, tome XXII, nº 24, p. 851-852.

WADLEY, F. M Development-temperature correlation in the green bug, Toxoptera graminum. *Journal of Agricultural Research*, Washington, D. C, 1936, Vol. 53, No. 4, pp. 259-266, figs. 1-3, Literature cited., p. 266.

WAGNER, F. A. Reaction of sorghums to the root, crown, and shoot rot of milo. *Journal of the American Society of Agronomy*, Geneva, New York, 1936, Vol. 28, No. 8, pp. 643-654, figs. 1-4. Literature cited, p. 654.
[*Pythium arrhenomanes*].

WALDRON, L. R. The effect of leaf rust accompanied by heat upon yield, kernel weight, bushel weight, and protein content of hard red spring wheat. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 53, No. 6, pp. 399-414. Literature cited, pp. 413-414.
[*Puccinia triticina*].

WANG, C. S. Viability and longevity of chlamydospores of Ustilago crameri. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp 1086-1087.

WARE, W. M. Alternaria leaf-spot of stock (Mattiola). *The Gardeners' Chronicle*, London, 1936, Third Series, Vol. C, No. 2596, pp. 236-237, figs. 105-107. [The identity of *Alternaria* observed on *Matthiola* has not been decided]

WATZL, Otto. Über den Lebenslauf der gemeinen Weizenhalmfliege im Hochsummer. Ein Beitrag zur Biologie in Mitteleuropa. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 3, S. 417-431, Abb. 1-6. Literatur, S. 429-431.
[*Oscinis pumilionis* = *Chlorops taeniopus*].

WEIDNER, Herbert Beiträge zu einer Monographie der Raupen mit Gifthaaren. *Zeitschrift für angewandte Entomologie*, Berlin 1936, Bd. XXIII, Heft 3, S. 432-484, Abb 1-10. Literatur, S. 467-484.

WEIGERT, J , und WEIZEL, H. Die Abhängigkeit des Halmfliegenbefalls bei Weizen von verschiedenen Anbaumassnahmen. *Praktische Blätter für Pflanzenbau und Pflanzenschutz*, Freising 1936, XIV. Jahrg., Heft 7, S. 198-203.
[*Chlorops taeniopus*].

WEIMER, J. L. Alfalfa dwarf, a virus disease transmissible by grafting. *Journal of Agricultural Research*, Washington, D. C , 1936, Vol. 53, No 5, pp 333-347, figs. 1-3. Literature cited, pp. 346-347.

WEINDLING, R , and EMERSON, O. H The isolation of a toxic substance from the culture filtrate of *Trichoderma*. *Phytopathology*, Lancaster, Pa., 1936, Vol. 26, No. 11, pp 1068-1070
[*Trichoderma lignorum*].

WERNER, Fausto Paulo. Estudos de molestias e pragas em culturas de batatinhas do Estado *Boletim de Agricultura, Zootechnia e Veterinaria*, Bello Horizonte, 1935, anno VIII, ns. 8, 9 e 10, pags 123-135, 2 figs.; 1936, anno IX, num. 1, pags. 43-52, figs 1-4, num. 2, pags 99-102, num 3, pags. 139-146, figs. 5-10, num. 4, pags 205-214, figs. 11-16; num. 5, pags. 263-280, figs. 17-22.
[*Phytophthora infestans*, *Cercospora solanicola*, *Rhizoctonia solani*, *Alternaria solani*, *Spondylocladium atrovirens*, *Fusarium solani*, *Fusarium* spp., *Oospora scabies*, *Verticillium albo-atrum*, *Phytomonas solanaceara*, *Bacillus carotovorus*, *Stilbum J cagnii*, virus diseases, *Solenopsis saevissima*, *Macrosiphum solanifolii*, *Pseudococcus maritimus*, *Rhizoglyphus echinopus*, *Dasypus* sp., *Julus* sp , *Heterodera marioni*, non-parasitic diseases, etc.].

WHITE, H. L. Anther smut of perpetual-flowering carnations. *The Gardeners' Chronicle*, London, 1936, Third Series, Vol. C, No. 2597, p 254, figs. 115-116
[*Ustilago violacea* on *Dianthus caryophyllus*].

WIESMANN, R. Untersuchungen über die Lebensgeschichte und Bekämpfung der Kirschfliege Rhagoletis cerasi Linné. III. Mitteilung. Untersuchungen und Versuche aus dem Jahre 1934. *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1936, L. Jahrg., Heft 8, S. 811-858, Fig. 1-2. Zitierte Literatur, S. 857-858. [Also with a summary in French].

WILKINSON, D. S. On two Braconids (Hym.) bred from economic hosts. *Bulletin of Entomological Research*, London, 1936, Vol. 27, Pt. 3, pp. 385-388, figs. 1-2.
[*Mirax leucopterae* n. sp. bred from *Leucoptera daricella* on *Pavetta termitolia* and from *Leucoptera* sp. from *Cremaspora africana* (Tanganyika Territory), *Fornicia chalcoscelidis* n. sp. bred from *Chalcoscelis albiguttatus* (Malaya). Description in English].

WILLIAMS, P. H. A disease of mushrooms new to Great Britain. *The [illegible] Chronicle*, London, 1936, Vol. C, Third Series, No. 2591, p. 147, fig. [illegible]
[*Pseudobalsamia microspora*].

WOLLENWEBER, H. W., und HOCHAPFEL, H. Beiträge zur Kenntnis parasitärer und saprophytischer Pilze. III. Fusarium und Cylindrocarpon und ihre Beziehung zur Fruchtfäule. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1936, 46. Jahrg., Heft 11, S. 534-544.
[See also this *Bulletin*, 1936, No. 11, p. 260].

YAGI, Nobumasa. On the nocturnal activity of moth of *Chilo simplex* Butler. *Journal of the Imperial Agricultural Experiment Station*, Nisigahara-Mati, Takinogawa-Ku, Tôkyô, Nippon, 1935, Vol. II, No. 4, pp. 481-490, figs. 1-2, pls. XXIX-XXXII. Literature cited, p. 488.
[In Japanese, with title and summary in English].

YAGI, Nobumasa, and KAWADA, Akira. On the sexual characteristics visible on the body of the rice borers *Chilo simplex* Butler and *Schoenobius incertellus* Walker. *Journal of the Imperial Agricultural Experiment Station*, Nisigahara-Mati, Takinogawa-Ku, Tôkyô, Nippon, 1935, Vol. II, No. 4, pp. 491-498, 3 figs., pl. XXXIII. Literature cited, p. 497.
[In Japanese, with title and summary in English].

YEDIDYAH, S. The Valencia orange and the Mediterranean fruit fly. *Hadar*, Tel-Aviv, Palestine, 1936, Vol. IX, No. 8, pp. 167-171, 2 figs.
[*Ceratitis capitata*].

ZAUMEYER, W. J., and WADE, B. L. Pea mosaic and its relation to other legume mosaic viruses. *Journal of Agricultural Research*, Washington, D. C., 1936, Vol. 53, No. 3, pp. 161-185, figs. 1-4. Literature cited, p. 185.

ZOLTÁN, Szilády. Egy hasznos légy látogatása az Alföldön. *Természettudományi Közlöny*, Budapest 1936, 68. kötet, 1055-1056. füzet, 371-373. o., 1. ábra.
[In Hungarian. — Notes the presence in Hungary of *Euxesta nitidiventris*].

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

Indian Agricultural Research Institute (Pusa)
LIBRARY, NEW DELHI-110012

This book can be issued on or before ....

Return Date	Return Date